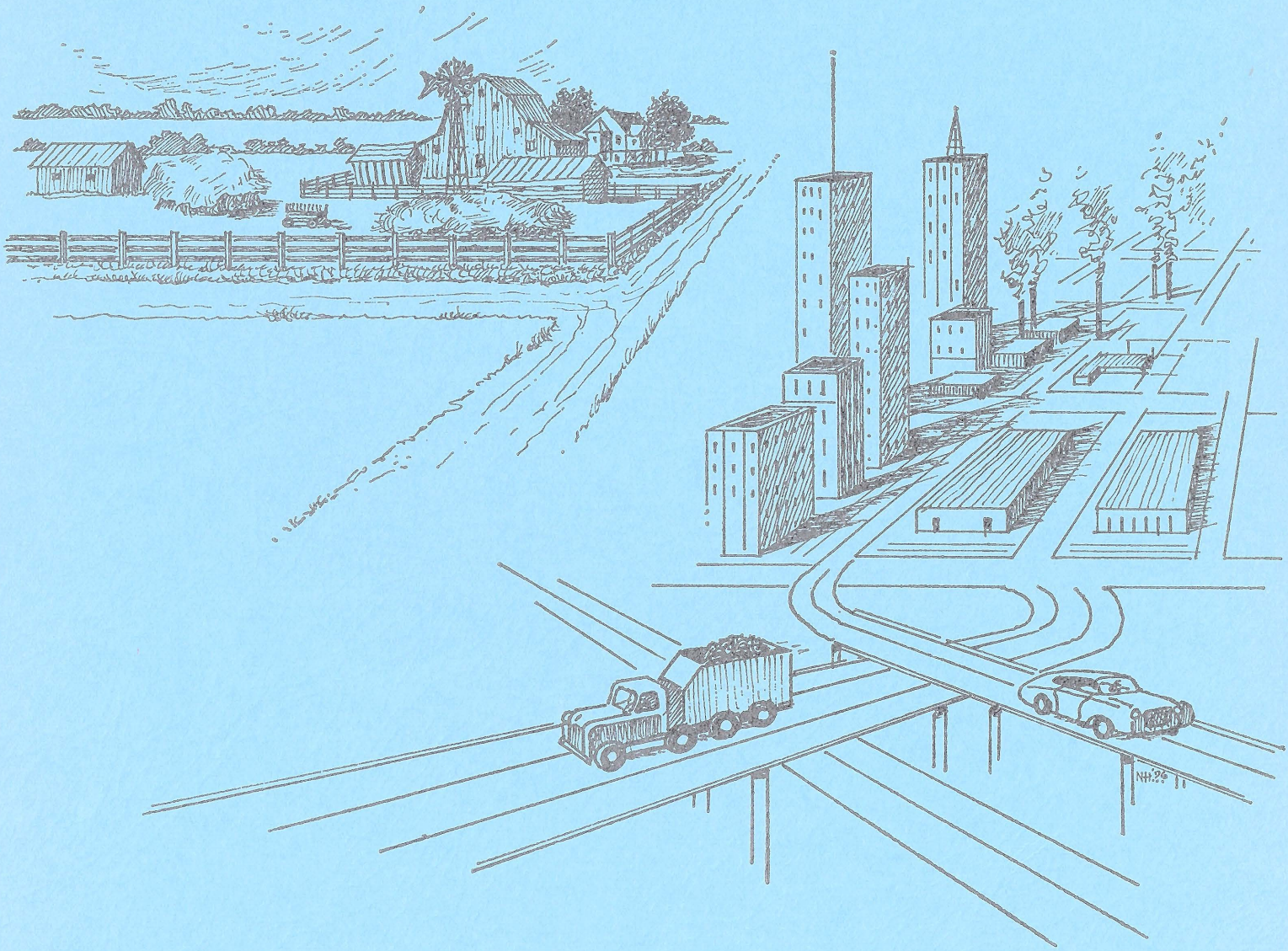
RESEARCH BULLETIN 1084 APRIL 1976

Land Use In Ohio, 1900-1970: How and Why It Has Changed

JOHN H. SITTERLEY



OHIO AGRICULTURAL RESEARCH AND DEVELOPMENT CENTER
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ACKNOWLEDGMENTS

The author expresses his appreciation for the suggestions and criticisms by those who have taken an interest in the preparation of this publication. He is especially grateful for the assistance of Mark Hinnebusch, the valuable counsel of Professors E. T. Shaudys and W. A. Wayt, the personnel in the Department's Statistical Laboratory, the secretaries, and the editorial assistance of his wife.

AGDEX 810-812-815-816 4-76-10M

LAND USE IN OHIO, 1900-1970: HOW AND WHY IT HAS CHANGED

JOHN H. SITTERLEY[1]

Part I — Introduction

THE PROBLEM

In many important agricultural sections of the United States, the area of land in farms has been decreasing rapidly during recent decades while large increases have been occurring in non-farm uses of land. During the past few years, concern has been growing over what is happening to the nation's supply of land for agriculture. The recent strong demand and high prices for farm commodities coupled with the rapidly increasing world population, the tightened energy situation, and the growing scarcity of other resources essential to a highly productive agriculture have intensified this interest.

For almost a half century the U. S. has been confronted chronically with problems of an excess supply of land for agriculture and a situation of generally depressed farm commodity prices. At present these problems are seemingly being replaced by problems associated with a land supply inadequate to meet an expanding need for the products and services provided by land.

OBJECTIVES

The primary objective of this study is to provide information about how Ohio's physical land area is currently being used and about major changes since 1900 in land use and in selected factors such as farm size, tenure arrangements, etc.

A secondary objective is to indicate some factors contributing to these changes, to make some limited projections, and to consider some implications of these changes on the ability of the state to respond to a need for increased agricultural production.

DEVELOPMENTS CONTRIBUTING TO CHANGES IN LAND USE

The early U. S. policy in respect to the disposal of its vast public domain—to transfer ownership from the government to individuals as rapidly as possible with a minimum of restrictions on use—resulted in the establishment of systems of land use for which large areas of land were ill adapted. The early pattern of land use resulting from this policy has been altered significantly by a number of developments. Some of these changes were already taking shape in the closing decades of the 1800's. Some of the impact of these developments has been reflected in the agricultural uses of land and some in the non-farm uses of land. Other developments have been both general and broad in their influences upon land use.

Forces for change may be placed in two broad categories. One involves the growth in population and the changes in desires and purchasing power of people, both domestic and worldwide. The other involves scientific and technological advances and their adoption.

The increase in the number of people alone has had a direct effect on the land use pattern of the state by increasing the need for land on which to live and work, space for dwellings, manufacturing and processing plants, extractive industries, business and commerce, highways, railroads, airports, recreation, public administration, etc. At the same time, the growing domestic and world population has had an indirect impact on land use through the increasing and changing need for land for the production of food, fiber, and forest products demanded by people.

In recent decades, changes in desires and the increasing purchasing power of the people have directly increased the demand for land by requiring more land per capita for living space, for less congestion, and for recreation. Changing desires and increasing purchasing power have also altered land use indirectly by demanding more of some foods and fibers and less of others. Increased production of feed grains has been called for by both a domestic and worldwide increase in the consumption of animal proteins, while simultaneously the per capita consumption of cereals, potatoes, and other starchy foods has decreased in the more affluent countries. The increasing domestic popularity of vegetable fats and synthetic fibers has also affected the need for land.

Scientific and technological developments shaping up in the late 1880's and expanding rapidly in the 20th century both in the farm and non-farm sectors of the economy have greatly altered the land use pattern over the 70 years analyzed. In the farm sector, rapid adoption of scientific and technological developments followed the depression of the 1930's and resulted in large increases in crop yields and livestock production. This increased production made it possible for the nation to meet until very recently domes-

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tic and international demand for food and fiber with fewer crop acres. The developments leading to low cost nitrogen production, herbicides, and pesticides also facilitated major shifts in cropping systems. These systems formerly involving crop rotations with large acreages of legume meadow crops for nitrogen production and weed and insect control changed to systems with greatly increased acres of intertilled crops and little or no meadow crops.

Improvements in farm mechanization also greatly affected agricultural land requirements. Especially significant was the displacement of draft animals powered by feed crops requiring land with the internal combustion engine powered by gasoline and diesel fuels which require no farmland. This development nationally released approximately 50 million acres of cropland for the production of crop and livestock products for market.

The production of new types of farm machines and increases in the size and performance of all categories of both crop and livestock equipment, especially that for crop production and harvesting, contributed significantly to changes in land use. These new and larger machines favored those parts of Ohio and the U. S. having large expanses of level to mildly rolling land because of its potential for large regular fields essential to the efficient use of the new equipment. At the same time, this development of larger equipment penalized those areas of Ohio having predominantly rolling to hilly land with its associated small, irregular shaped fields and problems of erosion control.

Technological developments in transportation such as automobiles, trucks, and improved highway systems contributed greatly to changes in land use during the 70 years analyzed. The automobile and low cost energy enabled people to live farther and farther from their centers of employment, markets, and social activities. This in turn made possible a shift from the high density or vertical urban growth patterns of the early 20th century to the urban sprawl pattern of recent decades which requires much more land per capita for living and working space. The limited access freeway is a recent development which is also fostering land use patterns different from those associated with earlier highways.

The rapid expansion of railroads in the United States and favorable freight rate regulations in the late 1800's and early 1900's provided large areas of highly productive soils west of Ohio with access to eastern markets. This greatly reduced the locational advantages of farmers in eastern Ohio, the impact of which was reflected in a decrease in land in farms in eastern Ohio in the early 1900's. In later years, improvements in truck transportation tended to further reduce locational advantages by making it possible to economically transport fluid milk and other perishable products long distances.

These improvements in transportation (automobiles and highways) together with improvements in communication also significantly influenced land use by greatly reducing the isolation of many rural communities, especially those in the Appalachian Highlands. They opened up to the residents of many low-income and self-sufficing farming areas more favorable economic opportunities elsewhere. This resulted in a flow of farm people out of these areas, and in more recent years an inflow of non-farm people seeking isolation and recreation.

Engineering technological developments have resulted in the production of larger and larger units of earth moving equipment in recent decades. As a result, the land area acquired to strip mine for coal in eastern Ohio has greatly expanded. Some of this land had already ceased to be farmed due to its inability to compete with more productive areas when it was acquired by coal companies. Much of that which was still in farms when acquired by the coal companies has rapidly passed into the non-farm category.

SOURCES OF LAND USE INFORMATION

A comprehensive picture of various aspects of Ohio's land supply should include not only current use but some appreciation of trends in use and in related factors over time. Basic data are from the U. S. Census and reports published by the Ohio Soil and Water Conservation Needs Inventory Committee.

The U. S. Bureau of the Census has published data on many aspects of Ohio agriculture each 10 years since 1850. Since 1900, reasonably comparable information has been available on a wide variety of items. Data are provided on acreage of land in farms, the number of farms, the size of farms, and details on use of land in farms including the acreage of individual crops harvested. The census also provides information on livestock numbers, the land operated under different tenure systems, total population, and farm population since 1920.

Unfortunately, the Bureau of Census does not provide land use information on land not in farms. The lack of information on the use of non-farm land was not critical in 1900, since 94 percent of the total land area of Ohio was included in farms. However, as the amount of land outside of farms increased from 6 percent in 1900 to 35 percent in 1970, the void in census information on land use became significant. In part, this void has been filled by information on land use obtained by the Ohio Soil and Water Conservation Needs Inventory Committee (CNIC) in

1958 and 1967.[2] Their reports, published in 1961 and 1971, provide information on the total physical land area of the state by counties and categories of use, including the land outside of farms as well as that in farms. Specifically, information is provided on the use of non-farm land such as that used for urban and built-up areas, industrial sites, railroads, roads, cemeteries, airports, golf courses, shooting ranges, institutional and public administration sites, and similar types of areas. The reports also provide the area of federal land in national forests, military installations, hospitals, etc.; the area of permanent bodies of water; and information on cropland, pasture land, forest land, and other land in or outside of farms.

The Ohio Soil and Water Conservation Needs Inventory Committee, in addition to recording the quantity of land in different use categories, recorded the capability or quality of the land by placing it in one of eight capability classes.[3] The first four classes, I through IV, are considered suitable for crop production with varying degrees of erosion control, drainage, or soil management practices. The remaining four classes, V through VIII, are considered suitable for permanent sod or forest cover but not for crop production.

Ohio's land resources differ greatly within the state regarding geological formation, soil type, and topography, and to a lesser degree climatically as well as proximity to metropolitan centers. Thus the pattern of land use and changes over the past 70 years differ significantly from one section of the state to another. To better reflect the situation in land use and changes, 11 subareas were delineated and analyzed in addition to the total state (see Fig. 4). The delineation was made on the basis of the physical characteristics indicated above.[4]

The information provided by these two sources, the U. S. Bureau of the Census and the Soil and Water Conservation Needs Inventory Committee, makes it possible to identify a number of significant changes which have occurred in the use of Ohio's land resources during the 20th century. It also enables a look at the situation today in relation to earlier periods and provides a basis for making projections in regard to the usage of land resources in the years immediately ahead and for formulating land use plans for the future.

[2]See Appendix 2, page 75, in the 1961 CNIC Report and pages 5 and 6 in the 1971 CNIC Report for procedure used to obtain the basic data on soil and land use.

[3]For description of land capability classes, see Appendix in the 1961 or 1971 CNIC reports.

[4]The subareas follow county lines which only approximate the true dividing lines between subareas. This procedure was necessary because the census data are reported by entire counties rather than by natural subareas.

INFORMATION PRESENTED

Part II of the study is concerned with the total state of Ohio. It includes a brief introductory statement on the extent and characteristics of the state's physical land resources. This is followed by information on the various categories of land use in 1970 (the year of the most recent decennial census), the situation in 1900, and the more significant changes occurring in land use and selected factors during the period 1900-1970. Specific information is presented on:

- Major uses of the total land area
- Acreage and types of crops harvested
- Number and size of farms
- Tenure arrangements under which land in farms was operated
- Density of roughage and grazing types of livestock
- Density of farm, non-farm, and total population

These are followed by some general observations in respect to possible future trends and some implications of the current land use pattern and probable trends on the ability of the state to respond to future needs for land.

Part III presents the same information for each of the 11 subareas plus a brief introductory section in which the land use and changes occurring in the subareas are compared.

TERMINOLOGY AND EXPLANATIONS

Date Designations

To minimize confusion, the publication dates of the U. S. Census Reports and the Ohio Soil and Water Conservation Needs Inventory Committee Reports have been used rather than the year for which the information was collected. The census data are for the year immediately preceding the date on the report. In the Conservation Needs Inventory Committee reports, the collection date was 1958 for the 1961 report and 1967 for the 1971 report.

Definitions

For simplification, the term *Census Report* (date) is used in place of *Census Report of the United States* (date). The term *CNIC Report* (date) is used in place of the *Ohio Soil and Water Conservation Needs Inventory Committee Report* (date).

In the study, land use is divided into two broad categories: *Land in Farms* and *Land Not in Farms*. The former is that identified by the Bureau of the Census as being within the bounds of farms. The latter is the remaining or all other land in the state. It is the difference between the total physical land area and the land in farms.

Land in Farms

In 1900 and each census since, information is provided on the physical land area, the acreage of land in farms, and the acreage of individual crops harvested for the state and individual counties on a basis which permits comparison over the period studied.

In the 1910 census and each census since, information is provided on the acreage of woodland in farms.

Starting with the 1925 census, information is provided on the acreage of cropland used for unharvested soil-improving crops, fallow, crop failure, and idle cropland. The acreage of land occupied by farmsteads (house and barnlots), lanes, farm roads, ditches, ponds, and wasteland became available in 1925 but was omitted in the 1970 report.

In the 1950 census and each census since, information on cropland used only for pasture and other pasture (not cropland, not woodland) is provided. Thus since 1950 it has been possible to obtain the total acreage of cropland for the state and counties by combining the acreages of crops harvested; cropland in soil building, fallow, failed, and idle; and the acreage of cropland used only for pasture. It also was possible to further categorize the non-cropland.

Other categories of land use have been provided in some census reports but not on a continuous basis, such as the acres of improved land and acres of plowable pasture. These were discontinued due to difficulties of definition, enumerator and farmer interpretation, costs, etc.

For the entire 70-year period, land in farms could only be broken into two categories: harvested cropland and all other land in farms. In 1910 a third category was established: total woodland in farms (pastured and unpastured). In 1950 two additional categories of cropland and one additional non-cropland category became available and were included in the study.

Land Not in Farms

Information on how the land not in farms was used is not provided by the census reports. In 1958, the Ohio Soil and Water Conservation Needs Inventory Committee conducted a detailed inventory of the state's total land resources. No distinction was made as to whether the land was in or outside of farms. The CNIC repeated the inventory in 1967. By assuming no significant change between 1967 and 1969, the year for which the Bureau of Census collected the data for the 1970 census report, it was possible to obtain a detailed picture of the manner in which the land outside of farms was used at the time the 1970 census was taken. By combining these reports, it is possible to identify two broad use categories of land not in farms in 1970: *Urban and Built-up Uses* and *All Other Land Not in Farms.*

Urban and Built-up Uses is a composite of three categories of land use established by CNIC: Urban and Built-up Areas, Federal Non-cropland, and Small Water Areas. These were defined in the 1971 CNIC Report as follows:

> Urban and Built-up Areas "include cities, villages, other built-up areas of more than 10 acres each in size, industrial sites, railroads, roads, cemeteries, airports, golf courses, shooting ranges, institutional and public administration sites, and similar types of areas. This separation will not necessarily include all land inside city and village limits, and will include some land outside of such limits. Areas of non-farm rural residences less than 10 acres in size are accounted for as other land not in farms and are not included in urban and built-up areas." Forested state park and wildlife refuge lands were not included in this category by the CNIC. Instead, they were invoiced by it as forest land. In this study, the land area in forested state parks and wildlife refuges is included in the "All other land not in farms" category (see below).
>
> Federal Non-cropland "includes national forests, military installations, hospitals, and other federally owned land outside of urban and built-up areas. Federally owned cropland operated under lease or permit was not included. . . ."
>
> Small Water Areas "include permanent bodies of water less than 40 acres in size or streams less than one-eighth of a mile wide."

These three uses were combined into one total designated by the author as *Urban and Built-up Uses* because the categories involved in the urban and built-up area identified in CNIC reports comprise 91 percent of the total acreage of these three uses. This category was also selected to identify a block of land which for all practical purposes is no longer available to agriculture.

All Other Land Not in Farms is the difference between the total acreage of land outside of farms and the land designated by the author as Urban and Built-up Uses. It includes land which was at one time but is no longer in farms, state-owned forests, forested state park and wildlife refuge lands, private forest land, rural non-farm residences occupied and/or abandoned, strip mined land, and other wasteland outside of farms.

Little specific management of this land is identifiable beyond that associated with publicly owned forests, forested park and wildlife land. Most of the other land not in farms is grown up in weeds and brush and/or in various stages of forest growth.

Practically all of it was in farms and three-fourths or more was cleared and used for crop production and open land grazing during the late 1800's and the early 1900's.

Livestock Density and Type Changes

The measure or index used was *the density of roughage and pasture-consuming livestock.* This was a measure for which reasonably comparable data were available for the 70 years covered by this study. This measure or index of density was developed by converting the number of horses and mules (all ages), dairy cows, beef cows, and sheep (1 year old and more) into animal units, with 0.9 horse or mule, one dairy cow, one beef cow, and five sheep considered an animal unit.

By assuming that the ratio of replacement animals to mature animals remained fairly constant, the number of animal units per 100 acres of land in farms provides a fair index of change in density of the types of livestock which are direct or primary users of land in contrast to the types which are concentrate (feed grains) or secondary users of land.

Changes in Census Bureau definitions and enumeration dates involving young farm animals, especially pigs, calves, and lambs, and the number of different types of poultry prevented the development of a statistic which would be reasonably accurate in representing changes in quantity of the predominantly concentrate or secondary users of land.

Approximate Land Areas

The land areas of the counties and the state are listed in the census reports as approximate. These were held constant through 1930. Each decennial census since then has listed minor changes in the area of some counties and the state.

Discrepancies

Some minor discrepancies exist between state totals as reported in the census and state totals derived by combining subarea totals. These discrepancies are due to omission of some harvested minor crops such as cowpeas, sorghum, spelt, and meadow cropseeds such as timothy which were included in state and county totals but were omitted in this report; to errors in interpretation of how some minor items were handled, resulting in some possible double accounting or total omission; and to human errors in transferring data or from unidentified typing and other errors. A major effort was made to identify and eliminate errors responsible for discrepancies of sufficient magnitude to have a significant impact on conclusions which may be drawn from these data.

Part II — Land Use Pattern and Changes for Entire State, 1900-1970

PHYSICAL FEATURES

Ohio with 26.2 million acres ranks 35th in physical land area among the 50 states. Its more than 350 different soils have been grouped by soil specialists into seven major soil regions on the basis of soil properties as they relate to the parent material and the length of time they have been exposed at the surface of the earth.[5] Most soils in the western half of the state are derived from limestone and have a fairly high soil pH throughout the profile, while those in the eastern half of Ohio are derived for the most part from sandstones and shales and tend to have a lower pH.

Approximately three-fourths of the state has been involved in several glacial invasions which have affected both its soils and topography. Their effect on soils is most evident in the transitional east central and southwestern parts of the state. Topographically, the glaciers tended to have a leveling effect. They left most of the land surface in the western half of the state level to near level except in the glacial morain areas where the terrain can be characterized as undulating and in the southwestern counties adjacent to the Ohio River where the terrain is a mixture of level to near level and fairly rough and broken. In the eastern half of the state, only the northern and a part of the east central areas were glaciated. In these, the terrain ranges from level or near level to rolling or hilly. The remainder of the eastern half of the state, along with all or parts of five counties in the western half, were unaffected by glacial action. In this section which comprises approximately one-fourth of the state, the topography can be characterized as generally rolling to hilly, with parts rough and broken.

Ohio has an average growing season (days between the last killing frost in the spring and the first killing frost in the fall) of approximately 162 days. Northeastern Ohio has the least number of growing days with a few small areas as low as 135 days, while areas along Lake Erie and the Ohio River have the most with 180 or more days.[6] The average annual rainfall in the state is approximately 38 inches. Variations within the state range from 28 to 44 inches, with the lowest occurring in the northwest and the

[5]Know Ohio's Soil Regions, Ohio Dept. of Natural Resources.

[6]Pierce, L. T. Oct. 1959. The Occurrence of Freezing Temperatures in Late Spring and Early Fall. Ohio Agri. Exp. Sta., Spec. Circ. 94.

highest in the northeast and southwest. Seasonally the rainfall distribution pattern is favorable. The critical growing season months of May, June, and July each have in excess of 3.5 inches, and August has about 3.3 inches. October has the lowest average with 2.4 inches. Probability of damaging extremes is relatively low in the state.

As indicated earlier, the Conservation Needs Inventory Committee, in addition to securing informaon the quantity of land in different uses, inventoried the state's land resources in respect to land capability. The percentage of land in different capability classes or groups of classes is shown in Figure 1.

THE LAND USE PATTERN IN 1970

Land in Farms

In 1970, slightly less than two-thirds or 17.1 million acres of the total physical land area in Ohio was in farms and the remainder or 9.1 million acres was non-farm land (Fig. 2A). Crops were harvested in 1969 according to the 1970 census on 8.5 million of the 17.1 million acres in farms and livestock were grazed on 3 million acres.[7] These two uses are of particular significance since these 11.5 million acres of farmland supported the state's entire output of crops and livestock products. In addition to the 11.5 million acres of harvested crops and pastured or grazed land in farms, there were 2.2 million acres in forest and woodland; 2.2 million acres of land in unharvested soil-conserving crops, fallow, crops which failed, and idle; and 1.3 million acres of land occupied by house and barn lots, ponds, farm roads, and wasteland (Table 1).

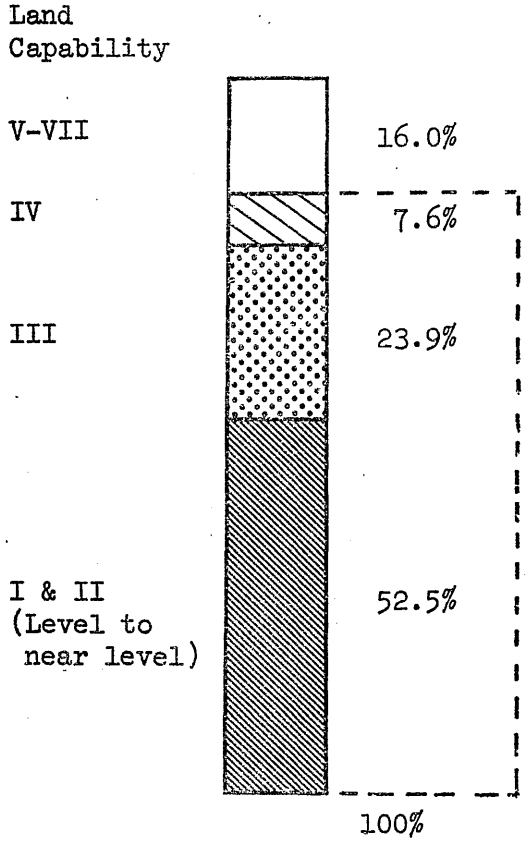
[7]In addition to the 3 million acres which consisted of 1.72 million acres of cropland pastured plus 1.23 million acres of non-crop, nonwoodland pasture, approximately 1.0 million acres of woodland were grazed.

Land Outside of Farms

According to data provided by the CNIC, urban and built-up areas, Federal non-cropland, and small water areas (or what is designated as Urban and Built-up Uses in this study) comprised slightly more than 3 million acres or 11.5 percent of the total physical area of the state in 1967.[8] For all practical purposes, this part of the state's land resource is unavailable for food and fiber production. The remaining 6.1 million acres of land outside of farms consisted of 4.2 million acres of forest, 0.3 million acres of nonfarm cropland which had been idle for more than 3 years, 1.5 million acres of unused grazing land, and 0.13 million acres of land occupied by non-farm rural

[8]For definitions of Urban and Built-up Areas, Federal Non-cropland, and Small Water Areas, see page 4.

FIG. 1.—Land Capability in Ohio.



16.0% Suitable for permanent grazing and/or forest, generally not suitable for cultivation.

84.0% Suitable for cropping with increasing degrees of erosion control practices and management problems in moving from I to IV.

100.0% See appendix for land capability characteristics and use restrictions.

residences, built-up areas of less than 10 acres in size, strip mined land outside of farms, quarries, gravel and borrow pits, etc. Forest, both that within the bounds of farms and that outside of farms, occupied approximately 6.5 million acres in 1967 if the federal forests in Ohio are included (Table 1).[9]

[9]Forest land as defined by CNIC includes lands which are at least 10 percent stocked by forest trees of any size capable of producing timber or other wood products, or capable of exerting an influence on the water regimes, land from which trees have been removed and have not been restocked, and land planted with forest trees.

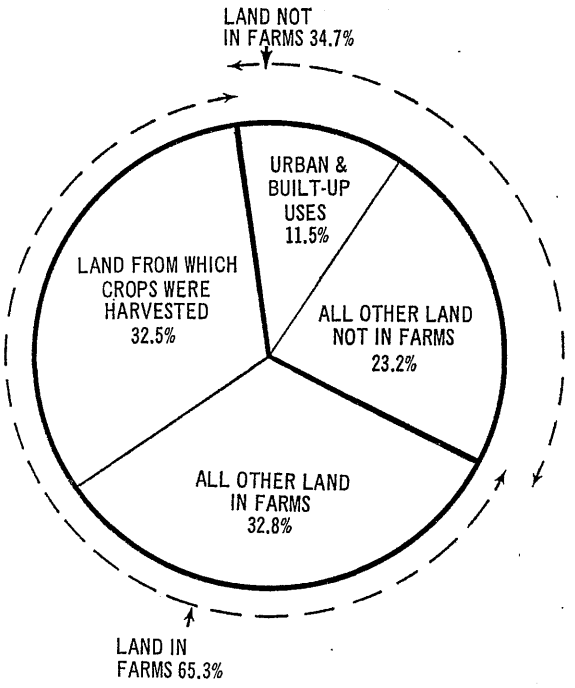


FIG: 2A.—Land Use in Ohio, 1970.

TABLE 1.—Land Use in Ohio, 1970.

Categories of Land Use	Land in Farms Acres[1]	Land Not in Farms Acres[2]	Total Acres[2]
1. Urban and Built-up Areas		2,759,612	2,759,612
2. Federal Non-cropland		194,866	194,866
3. Water Areas		67,600	67,600
4. Total Urban and Built-up Uses (lines 1, 2, and 3)		3,022,078	3,022,078
5. Cropland Harvested			
6. Intertilled Crops	5,472,100		5,472,100
7. Small Grain Crops	1,625,719		1,625,719
8. Meadow Crops Harvested as Hay	1,383,727		1,383,727
9. Fruit Crops	33,729		33,729
10. Total Cropland Harvested (lines 6, 7, 8, and 9)	8,515,275		8,515,275
11. Cropland Used Only for Pasture	1,725,734		1,725,734
12. All Other Cropland (conserving crops not harvested, fallow, failed, and idle)	2,206,080	294,784[3]	2,500,864
13. Total Cropland (lines 10, 11, and 12)	12,447,089	294,784[3]	12,741,873
14. Forest and Woodland	2,179,233[4]	4,160,935[5]	6,340,168
15. Other Pasture (not cropland or woodland)	1,230,438[6]	1,504,806[7]	2,735,244
16. Land Occupied by House and Barn Lots, Ponds, Farm Roads, Wasteland, etc.	1,254,699[6]	130,706[8]	1,385,405[8]
17. Total All Other Land (lines 11, 12, 14, 15, and 16)	8,596,184	6,091,231	14,687,415
18. Total Land Area (lines 4, 10, and 17)	17,111,459	9,113,309	26,224,768

[1]Source of acreage of land in farms and its different components is the 1970 census.

[2]Source is the 1971 CNIC report.

[3]Cropland listed as not in farms is the difference between the total cropland reported for the entire state by CNIC and that reported in farms in the 1970 census. This is idle land previously cropped but in the opinion of the author it was outside of farms when CNIC inspection was made.

[4]This includes both the pastured and unpastured woodland. In 1970, the acreage of woodland pastured was not reported by the census but in 1960 41.5 percent of woodland on farms was pastured. If the same ratio is assumed for 1970, there would have been 904,832 acres of woodland pastured.

[5]Land in forest and woodland not in farms was arrived at by deducting the 2,179,233 acres of woodland reported in farms in the 1970 census from the total acreage of forest land reported for the entire state by CNIC.

[6]In the 1970 census, other pasture (not cropland, not woodland) in farms was not reported separately. Instead, it was included with the land in house lots, barn lots, ponds, farm roads, wasteland, etc. In the 1960 census, these two categories of use were reported separately. On the assumption that the proportion of the total farm area in house lots, barn lots, ponds, farm roads, wasteland, etc. in 1970 would be similar to that in 1960 or 7.33 percent, the 1970 acreage was estimated to be 1,254,699. This was then deducted from the 2,485,137 acres of other land in farms in 1970 to arrive at acreage of other pasture (not cropland, not woodland).

[7]The 1,504,806 acres of other pasture (not cropland, not woodland) was arrived at by deducting the 1,230,438 acres of other pasture in farms from the total acreage of pasture land invoiced by CNIC for the entire state. This is unused grazing land outside of farms.

[8]The 130,706 acres in land outside of farms occupied by non-farm rural residences, idle farmsteads, built-up areas of less than 10 acres in size, strip mined land outside of farms, quarries, gravel and borrow pits, etc. was arrived at by deducting the 1,254,699 acres of land in farms occupied by house lots, barn lots, ponds, farm roads, wasteland, etc. from the total state acreage of other land reported by CNIC. To correct for the difference (19,168 acres) between the census physical land area of the state and the physical land area reported by CNIC, the latter figure was increased from 1,366,237 acres to 1,385,405.

TABLE 2.—Land Use in Ohio 1900.

Land Use	Land in Farms Acres	Land Not in Farms Acres	Total Acres
1. Total Urban and Built-up Uses (includes cities, villages, railroads, roads other than farm roads, institutional and public sites, federal non-cropland, and water areas)[1]		403,284	403,284
2. Cropland Harvested[2]			
3. Intertilled Crops	4,179,395		4,179,395
4. Small Grain Crops	4,388,935		4,388,935
5. Meadow Crops Harvested as Hay	3,015,261		3,015,261
6. Fruit and Berries	440,871		440,871
7. Other Crops	15,383		15,383
8. Total Cropland Harvested (lines 3, 4, 5, 6, and 7)	12,039,845		12,039,845
9. Land Pastured or Grazed (both cropland used only for pasture and permanent meadow pasture)[3]	4,509,409		4,509,409
10. Land in Woodland and Forest and "Old Fields" (no longer cropped and not yet reforested)	5,257,513[4]	900,000[5]	6,157,513
11. All Other Land (including crop failure, idle and fallow, all rough, swampy or wasteland not in forest, pasture or crops and land occupied by farmsteads, roads, ditches, etc.)[3]	2,695,218	268,331	2,963,549
12. Total All Other Land (lines 9, 10, and 11)	12,462,140	1,168,331	13,630,471
13. Total Land Area (lines 1, 8, and 12)	24,501,985	1,571,615	26,073,600

[1]The total acreage of Urban and Built-up Uses (the composite of urban and built-up areas, Federal non-cropland, and water areas) was arrived at as follows: the decrease in acreage of land in farms between 1900 and 1910 as reflected in the 1910 census was divided by the increase in urban population between 1900 and 1910 in the eight most populous counties (Cuyahoga, Franklin, Hamilton, Lucas, Mahoning, Montgomery, Stark, and Summit). In these eight counties, urban population increased 478,090 and land in farms decreased 75,230 acres or 0.157 acre per capita increase in urban population. This was rounded to 0.16 and assumed to be the acreage of urban and built-up areas, Federal non-cropland and water areas per urban inhabitant in 1900. On the basis of the 1900 urban population of 1,998,382, the area occupied by the state's urban population (1,988,382 x 0.16) was 319,741 acres. To this was added 83,543 acres estimated to be occupied by the 417,717 people living in villages (under 2,500 inhabitants) in 1900. This was arrived at by assuming a village density of 5 persons per acre or 0.2 acre per person as compared to 6.25 persons assumed per acre in cities. The combined acreage of 403,284 (319,741 + 83,543) was assumed to include Federal non-cropland and water areas as they were defined in the 1971 Soil and Water Conservation Needs Inventory Committee Report.

[2]Land in crops harvested is a composite of the acreage of the individual crops reported in the 1900 Census of Agriculture, Vol. IV, Part II, to which was added an estimate of the acreage in orchards and vineyards. In the 1900, 1910, and 1920 censuses, the numbers of trees and vines were reported rather than acres of orchards. Small fruits and berry acreage was reported. Tree numbers were converted on the basis of 40 apple trees equaling an acre and 100 peach, pear, plum, cherry and other miscellaneous and 500 grapevines per acre. Including the acreage of small fruit and the derived acreage of fruit trees, the estimate for the total fruit acreage for 1900 equals 440,871; for 1910, 305,205; and 1920, 217,740. In 1930, the census reported acres of fruit rather than tree numbers. The acreage reported was 235,716 for 1930, which was a little higher than the author's estimate for 1920. This might indicate that the author's estimate was low rather than high.

[3]The following procedure was used to arrive at the acreage of a) land pastured and grazed, and b) all other land including cropland on which crops failed, and fallow and idle cropland, and land occupied by houses, barns, farm roads, wasteland, etc. in 1900. From the 19,244,472 acres of improved land, the 12,039,845 acres of harvested crops were deducted, leaving 7,204,627 acres. This acreage, according to the census definition of improved land, included a) cropland used only for pasture and permanent meadow pasture, and b) cropland on which crops failed and fallow and idle cropland; all rough, swampy, or wasteland not in forest; pasture or cropland; and the land occupied by farmsteads, farm roads, ditches, etc. Since the 1900 census provided no basis for dividing the 7,204,627 acres between a) and b), an estimate was made on the basis of the ratio of the combined acreage of crop failure, fallow and idle land, and the acreage of all other land which consisted of the land occupied by farmsteads, farm roads, and wasteland to the total acreage of land in farms in 1925 and 1930, according to the census in those years. The 1925 census total of these three categories of use was 2,405,316 acres or 10.8 percent of the land in farms and in 1930 the total was 2,440,937 acres or 11.3 percent. Based on these two censuses, it was assumed that 11 percent of the total land in farms in 1900 was represented by the total of these three categories of use, or 2,695,218 acres. The combined acreage of cropland used only for pasture and the permanent meadow pasture or 4,509,409 was arrived at by deducting 2,695,218 acres from 7,204,627.

[4]The 1900 census divided land in farms into improved land and unimproved land. Improved land was defined as tilled including fallow and grasses in rotation whether pasture or meadow and permanent meadow pasture, cultivated forest, or orchards, vineyards, nurseries, and market gardens. Unimproved land was defined as natural woodland and forest, other unimproved land including "old fields" not growing woods. On June 1, 1900, there were 19,244,472 acres of improved land in farms and 5,257,513 acres of unimproved land. The acreage of land in old fields not yet growing woods in 1880 was 465,628 according to the 1880 census (old field acreage was not reported in 1900). In view of the depleting nature of farming at that time, the author assumed that the acreage in old fields in 1900 was not less than 500,000. Thus the acreage of woodland and forest in farms in 1900 would have been approximately 4.7 million (5,257,513 acres of unimproved less 500,000 acres in old fields).

[5]The acreage in non-farm forest and woodland and all other non-farm land was arrived at by deducting from the 1,571,615 acres of land outside of farms the 403,284 acres estimated to be absorbed by urban and built-up uses. The 1,168,331 was then divided between land in woodland and forest and "old fields" no longer cropped and not yet reforested (census terminology), and rough, swampy, or wasteland not in forest. This was done by first estimating the acreage of rough, swampy, and wasteland by reference to the land capability data provided in the CNIC reports. Based on this information, 268,331 acres were placed in the latter category. The remaining 900,000 acres (1,168,331 minus 268,331) were assumed to be primarily woodland and forest.

THE LAND USE PATTERN IN 1900

The real significance of the 1970 land use pattern cannot be fully appreciated until one considers the changes which have occurred in the state's land use and selected aspects of agriculture related to land use and the recent trends. To identify these changes, their magnitude, and trend, it is necessary to establish the land use pattern for 1900 and for the intervening decennial census periods between 1900 and 1970.

Census information for 1900 and the intervening census periods is available only for that part of the state's land considered to be in farms. With 24.5 million acres or 94.0 percent of the reported physical land area of the state in farms in 1900 (Fig. 2B), the unidentified remaining 1.57 million acres outside of farms is less vital to the analysis of change than in 1970 when there were 9.1 million acres outside of farms. Lacking a CNIC report to draw on for information on how the 1.57 million acres of non-farm land were used, an attempt was made to divide the non-farm area in 1900 into three categories: the urban and built-up uses which include cities, villages, railroads, roads other than farm roads, institutional and public sites, etc.; the forest and woodland area; and the area of rough, swampy, wasteland etc. The procedure used in arriving at these estimates is given in footnote 1, Table 2.

Some of the more pertinent aspects of the land use pattern in 1900 are the almost complete occupancy of the state's land by farms, the large acreage of crops harvested (46.2 percent), land pastured or grazed (17.3 percent), the amount of forest and woodland on farms (23.6 percent), and the very small amount (1.5 percent) of the state's land occupied by cities, villages, railroads, non-farm roads, industrial, institutional and public sites, etc. Of particular interest is the combined acreage of land from which crops were harvested (12.0 million) and that pastured or grazed (4.5 million) or 16.5 million acres. This land accounted for the state's entire output of crops and livestock products at the turn of the century. In 1970 the combined acreage was 11.5 million.

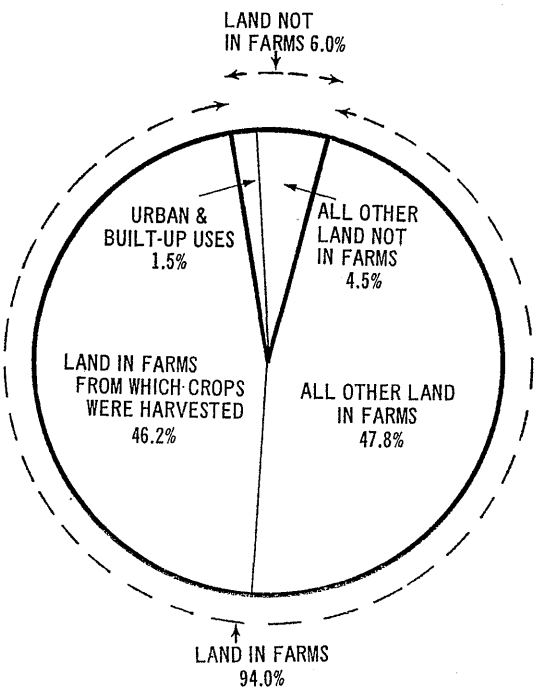
SIGNIFICANT CHANGES IN LAND USE AND RELATED FACTORS, 1900-1970

With land use patterns established for 1970 and 1900 and comparable data available on the use of land in farms and related factors for each of the seven intervening census periods, it is possible to identify numerous major changes and trends (Fig. 3).

Land in Farm and Non-farm Uses

The first major change to be observed in the use of the state's land resources during the 70-year period

FIG. 2B.—Land Use in Ohio, 1900.



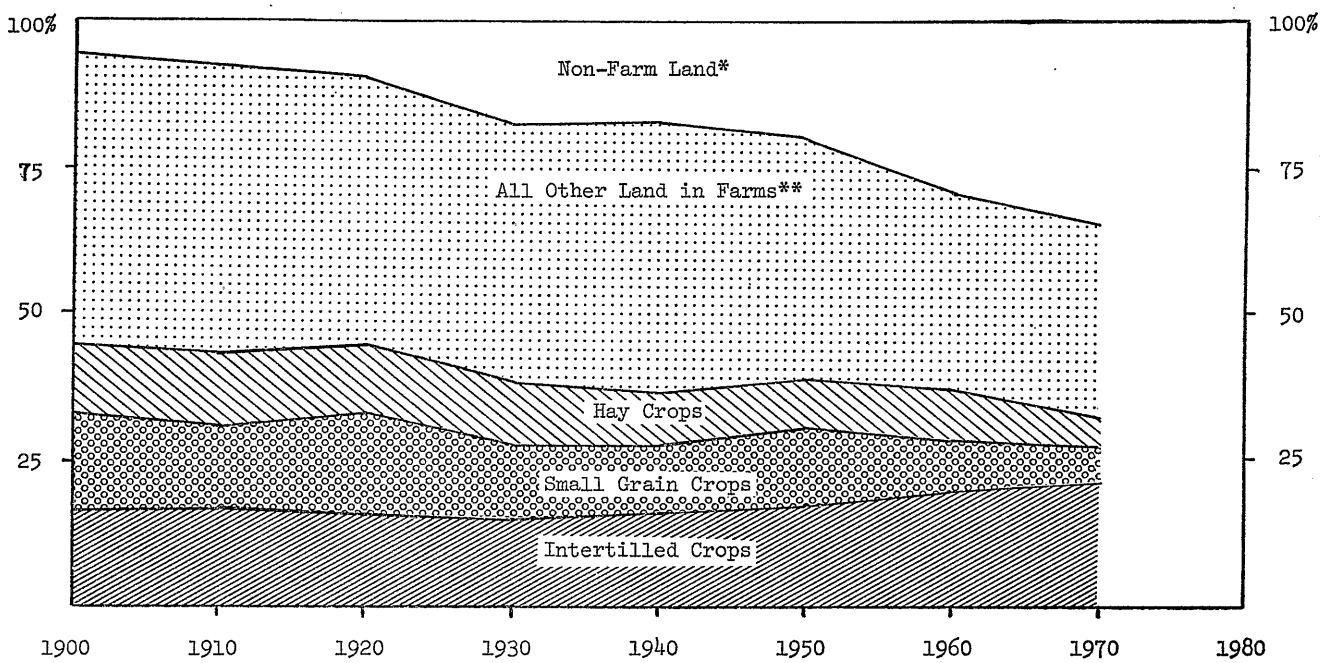
is the amount of land in farms. In 1900 there were 24.5 million acres in farms or 94 percent of the state's total land area in contrast to 17.1 million acres or 65.3 percent in 1970. This is a decrease in land in farms of 30.2 percent in 70 years (Fig. 3).

In the 1900 census, a farm was defined as: "The land under one management, though consisting of different tracts upon which agricultural products, including animals and fowls, are raised or produced. In reporting the acreage, value and crops of each farm, care should be taken to include the acreage, value and crops of all woodlots, pastures, meadows, plow lands, and other land occupied or used in connection therewith . . . All considerable market, truck and fruit gardens, nurseries, greenhouses, etc. should be reported as farms but family gardens on city or village lots, the products of which are used exclusively for home consumption, are not to be considered farms."

In the 1970 census, a farm was defined as: "Places on which agricultural operations were conducted at any time during the census year under the control of an individual management. Places of less than 10 acres were counted as farms if sale of agricultural products amounted to, or normally would amount to, at least $250. Places of 10 or more acres were counted as farms if the sales of agricultural products for the year amounted to, or normally would amount to, at least $50."

Between 1900 and 1970, minor changes were made in the definition of a farm. The effect of these

FIG. 3.—Land Use in Ohio by Census Periods, 1900-1970.



*Includes Urban and Built-up Uses, scattered non-farm rural residences, brush, forest, and wasteland outside farms.
**Includes cropland which is idle, fallow, and failed; cropland used only for pasture; non-cropland, non-woodland pasture; woodland; and land occupied by farmsteads, farm roads, ponds, and wasteland.

TABLE 3.—Total Land Area and Acreage by Different Use Categories, State of Ohio, by Census Periods, 1900-1970.

Census Period	Total Land Area	Total Land Outside Farms	Land in Farms						
			Total in Farms	Cropland				Woodland Pastured & Not Pastured	All Other Land in Farms[2]
				Cropland Total[1]	Harvested	Idle, Fallow and Failed	Pastured Only[1]		
1900	26,073,600	1,571,615	24,501,985	NA	12,039,845	NA	NA	NA	NA
1910	26,073,600	1,967,892	24,105,708	NA	11,731,102	NA	NA	3,285,376	NA
1920	26,073,600	2,557,712	23,515,888	NA	11,998,314	NA	NA	3,198,929	NA
1930	26,073,600	4,559,541	21,514,059	NA	10,115,652	1,153,743	NA	2,773,629	NA
1940	26,318,080	4,410,557	21,907,523	NA	9,771,609	1,048,272	NA	2,413,484	NA
1950	26,240,000	5,270,589	20,969,411	13,378,765	10,295,590	1,033,871	2,049,304	3,046,591[3]	4,544,055
1960	26,222,080	7,715,284	18,506,796	12,255,370	9,743,467	1,007,189	1,504,714	2,542,999	3,708,427
1970	26,224,768	9,113,309	17,111,459	12,447,089	8,515,275	2,206,080	1,725,734	2,179,233	2,485,137

[1]Total Cropland and Cropland Used Only for Pasture were not reported in censuses prior to 1950. In 1930 and 1940, the census reported an acreage of Plowable Pasture, defined as the land used only for pasture which could have been used for crops without clearing and draining. As interpreted by most farmers, this included their open (brush and tree-free) permanent pasture, as well as their cropland used only for pasture. Consequently, it could not be added to the acreage of crops harvested and the idle, fallow, and failed acres to obtain a Total Cropland acreage. In 1950, the Bureau of the Census shifted from the classification of Plowable Pasture to Cropland Used Only for Pasture, and obtained an acreage figure which, although it probably still contained some permanent pasture land, was considered a sufficiently reliable reflection of cropland to permit the reporting of a Total Cropland acreage.
[2]Non-crop, non-woodland pasture and land in house and barn lots, lanes, roads, ditches, ponds, and wasteland.
[3]No definition was given farm operators or census enumerators in 1950, which may explain this improbable increase.

changes has not been of major significance in terms of the number of farms or the acreage of land reported to be in farms. Consequently, the number of farms and the area in farms published in the decennial census reports from 1900 through 1970 are treated in this report as comparable and thus a valid reflection of changes which have taken place during the 70 years analyzed.

The maximum acreage of land in farms in Ohio in 1880 was 24,529,226, according to the Census Bureau. In 1900 it was 24,501,985 acres. During the first 20 years of this century (1900-1920), the area in farms decreased by about 1 million acres or 4 percent (Table 3). During the next 10 years (1920-1930), land in farms declined approximately 2 million acres. This was the period in which world demand for U. S. farm commodities dropped sharply as the U. S. moved from a debtor to a creditor position following World War I and farm prices and income became distinctly unfavorable. At the same time, the U. S. non-farm sector prospered and grew rapidly. Of the approximately 2 million acre decrease in land in farms during the 1920's, 520,000 acres were in the 10 counties most urbanized in 1970[10] and 637,000 acres were in the unglaciated areas of the state or subareas 9 and 10 (see Fig. 4). In these two areas, farmland retirement was occurring rapidly as a result of soil depletion and increased competition from more productive agricultural areas.

Between 1930 and 1940, the period of the "great depression", the amount of land in farms increased slightly as some unemployed families moved back to the land. However, the downward trend of land in farms resumed as the economy recovered its momentum in the early 1940's. During the next 30 years, the area in farms dropped by approximately 4.8 million acres, with all but 1 million acres of this occurring between 1950 and 1970. This too was a period in which both agricultural prices and income were depressed much of the time due to excessive supplies of farm commodities in relation to demand. Consequently, farming was in a weak position to compete for land. On the other hand, as in the 1920's the non-farm sector of the economy was prospering and in a period of rapid expansion, making it a strong competitor for land. Again as in the 1920's, most of the decline in land in farms occurred in the 10 urban counties and in the hill counties of eastern and southern Ohio.

Concurrent with the decrease of land in farms has been the steadily increasing proportion of the state's land occupied by urban and built-up areas, federal non-cropland, and water areas or what is termed in this report the Urban and Built-up Uses. The amount of land in this category has increased from an estimated 403,248 acres in 1900 to more than 3 million acres in 1970, or about seven times.

[10]Cuyahoga, Lake, Lorain, Mahoning, Stark, and Summit counties in the eastern half of the state and Franklin, Hamilton, Lucas, and Montgomery counties in the western half of the state.

Crops Harvested

Acres of crops harvested in the state declined from 12.0 million in 1900 to 8.5 million in 1970, or 29.3 percent. Except in 1920 and in 1950, each 10-year census registered a decrease in the acreage of crops harvested (Table 3).

Nine of the state's 11 subareas registered fairly sharp declines in the acreage of crops harvested. The other two subareas (1 and 2) registered significant increases. Both of these are in northwestern Ohio and have highly productive soils. Except for Lucas County in which Toledo is situated, they have been only slightly affected by the growing non-farm demand for land. Competition from non-farm uses in subareas affected by the state's rapidly growing population and industrial development and the low farm income in those parts of the state with large acreages of low capability soils were major factors contributing to the decline in the acres of crops harvested.

The change in the acreage of cropland standing idle, fallow, or on which crops failed was minor from 1930 to 1960. However, between 1960 and 1970, the acreages in this category doubled, primarily as a result of the Agricultural Adjustment program. Prior to 1925, the Census Bureau did not collect information on this category of land use.

Importance of Different Crops

Several important changes have taken place in types of crops harvested. These are of primary importance because they reflect the products produced, the cropping systems employed, and the impact their production may have on the state's soil resources. For each of the census periods, crops harvested were classified as: intertilled crops (corn, soybeans, potatoes, vegetables grown for sale, tobacco, sugarbeets, and popcorn); small grain crops (wheat, oats, barley, rye, and mixed grains); crops harvested for hay; and fruit and berries (Table 4).

Over the entire 70-year period, the importance and acreage of intertilled crops increased both relatively and absolutely. Relatively, they increased from 34.8 percent of crops harvested in 1900 to 64.3 percent in 1970 and in acres from 4.2 to 5.5 million. The major part of this change occurred after 1940 and is correlated with the increasing use of nitrogen fertilizer, the growing demand for soybeans, and the increasing availability of better adapted production and harvesting equipment.

Small grain acreage has fluctuated widely over the period, exceeding the acreage of intertilled crops in both 1900 and 1920. Since 1950, also a year with a large acreage, the acres of small grains have declined to less than half of that in 1950.

Crops harvested as hay increased slightly between 1900 and 1910 but each census since then has registered a decrease, with the acreage harvested in 1970 only 43.5 percent of that harvested in 1910.

Over the 70-year period analyzed, there have been major changes in the crop rotations employed by Ohio farmers. Until the decade of the 1940's, six fairly common rotations were identifiable. These were: 1) a 3-year rotation consisting of corn, wheat or oats, and a meadow crop for hay and/or pasture; 2) a 4-year rotation consisting of corn, oats, wheat, and a meadow crop; 3) a 4-year rotation consisting of corn, corn, wheat or oats, and 1 year of meadow; 4) a 4-year rotation consisting of corn, small grain, meadow, meadow; 5) a 5-year rotation of corn, corn, wheat or oats, meadow, meadow; and 6) a 5-year rotation consisting of corn, oats, wheat, and 2 years of meadow crops. Seldom did an intertilled crop or a meadow crop occupy more than 50 percent of a farmer's cropland. Likewise, it was rare if there was less than 25 percent of the cropland in meadow crops except in the level land areas of the northwestern part of the state, and even there most farmers did not drop below 20 percent.

No longer are these rotations widely followed except on dairy farms and in the more hilly parts of eastern and southern Ohio. This change is reflected in the rapid increase in recent years in intertilled crops and the decline in the acreage of small grain and meadow crops (Table 4).

Currently many farmers are maintaining 100 percent of their cropland in intertilled crops. This shift away from small grain and meadow crops has largely been due to grain prices, availability of low-cost nitrogen fertilizer, a shortage of hay harvest labor, the development of equipment capable of greatly reducing harvest labor of intertilled crops, no-till corn planters which are making possible the growing of more corn and less meadow crops in the more hilly areas of the state without increasing soil erosion, and changes in meadow crop acreage required by livestock.

Fruit and berries have registered a decline in acreage each census since 1900 (Table 4).[11] At the turn of the century, to more nearly provide self-sufficiency, practically every farm reported some fruit trees and grapes. On the basis of an estimated acreage of 440,850 in 1900, the decrease over the 70 years to 33,729 acres amounted to a 92.3 percent reduction.

Pronounced changes have taken place in the importance of some individual crops. The preceding reference to the decline in the acreage of fruit and berries is only one of these. Others include the decrease from more than 200,000 acres of potatoes pro-

[11]The slightly higher acreage in 1930 than in 1920 is probably due to a lack of comparability since the acreages reported in 1900, 1910, and 1920 were derived acres (see footnote 2, Table 2).

TABLE 4.—Acreage of Principal Crops Harvested by Types of Crops in Ohio by Census Periods, 1900-1970.

	1900	1910	1920	1930	1940	1950	1960	1970
Row or Intertilled Crops								
Corn, All Purposes	3,826,013	3,916,050	3,787,820	3,473,143	3,352,020	3,455,124	3,588,609	2,937,806
Soybeans	NA	NA	NA	86,642	488,328	883,598	1,419,014	2,387,587
Potatoes, Irish and Sweet	171,386	217,767	127,501	105,152	88,466	26,259	14,629	14,359
Vegetables for Sale	105,537	124,604	62,860	93,790	96,350	78,885	69,192	66,744
Tobacco	71,422	106,477	75,789	49,575	30,036	19,258	12,453	8,527
Sugarbeets	NA	7,036	33,561	17,693	43,391	21,710	21,136	38,800[a]
Popcorn	5,037	NA	NA	1,003	9,090	8,937	14,739	20,000[a]
Total	4,179,395	4,371,934	4,087,531	3,826,998	4,107,681	4,493,771	5,139,772	5,473,823
Small Grains								
Wheat	3,209,074	1,827,932	2,922,592	1,563,740	1,859,845	2,238,319	1,226,283	1,003,915
Oats	1,115,149	1,787,496	1,452,052	1,612,758	971,058	1,230,304	1,064,074	
Barley	34,058	24,075	114,217	86,120	22,536	14,958	56,351	621,804
Rye	17,583	67,912	116,464	50,465	39,884	13,289	23,115	
Mixed and Other Grains	13,071	27,210	32,760	52,623	48,059	28,458	18,863	
Total	4,388,935	3,734,625	4,638,085	3,365,706	2,991,382	3,525,328	2,388,686	1,625,719
Hay Crops Harvested	3,015,261	3,176,423	2,997,710	2,625,551	2,355,836	2,123,725	2,003,161	1,383,727
Fruit and Berries	440,850[b]	305,180[b]	217,750[b]	235,716	162,244	103,965	51,762	33,739
Total Crops Harvested[c]	12,024,441	11,588,162	11,941,086	10,053,971	9,592,693	10,246,789	9,583,381	8,517,008

[a]Source, Crop Reporting Service.
[b]Derived by converting number of trees and vines to acres.
[c]See section on Discrepancies, page 5.

duced on Ohio farms early in this century to less than 15,000 acres in 1970 (Table 4); the decrease in the acreage of vegetables grown for sale from 125,000 acres in 1910 to 67,000 acres in 1970; the decrease in tobacco acreage from 106,000 acres in 1910 to 8,500 acres in 1970; and the decrease in wheat acreage from approximately 3 million acres in 1900 and 1920 to 1 million acres in 1970. Over the 70-year period, the acreage of wheat has varied greatly from year to year.

On the other side of the coin, one crop has registered a conspicuous increase—soybeans. It was not until 1930 that soybeans became sufficiently important to be included in the list of crops on which the Census Bureau reported a total acreage (86,642) harvested. This total included both acres harvested for hay and those harvested as beans. Based on the large total acreage of annual legumes reported harvested for hay in 1930, it is evident that not more than 1 acre in 4 was harvested as beans. In the 40 years from 1930 to 1970, the acreage harvested as beans increased to 2.4 million. In 1973, according to the Crop Reporting Service, the acreage of soybeans exceeded that of corn in Ohio. Sugarbeets was another crop that was not of sufficient importance in Ohio in 1900 to be listed in the census. The acreage of this crop has been highly variable. Only in years following those when sugar has been in short supply has the acreage exceeded 40,000 acres.

Number and Size of Farms

Changes in the total number of farms and in the number of farms of different sizes in terms of the amount of land controlled per farm are major changes affecting land use in the state.

The largest number of farms recorded in any Ohio census was 276,719 in 1900 (Table 5). Since 1900, each 10-year census has registered a decrease in the number of farms except for the 10-year period 1930-1940, when a small increase occurred due to some families entering farming as a means of coping with the depression. With the improvements in the economy in the 1940's, farm numbers again decreased as farm families found more favorable income opportunities in the non-farm economy. By 1970, the number of farms reported had dropped to 111,332 or 40.2 percent of the number in the state in 1900. Expressed another way, 165,387 farms ceased to function as farm firms during these 70 years.

Some land released by the 165,387 farms which ceased to exist moved immediately into non-farm uses. Some land either immediately or within a few years ceased to be used for farming due to its inability to return an income competitive with other opportunities. This latter trend has been particularly pronounced in eastern and southern Ohio. On the other hand, many farms which have ceased to exist did so because of their size measured in land area, rather than the quality of their land or the non-farm opportunities open to their operators. In these cases, the land released was either rented or purchased by other farmers in need of more land to make or keep their farms viable operating units.

In respect to size of farms, there have been many changes. During the first two decades of the 20th century, the average size of farm in terms of acres remained almost constant at about 90 acres. However, during this period the number of farms with 180 acres or more decreased from about 25,000 in 1900 to 23,000 in 1920. In this same period, the number of farms in the 100 to 179-acre size registered a small increase (Table 5). From 1920 to 1930, there was a significant increase in the average size of farms measured in acres of land. This was due to a number of factors. Among these were the decrease in the use of animal power (Table 7) and the increase in the number of tractors which enabled the farm family to handle more land. Another factor was the availability of land for size expansion made possible by the fairly sharp decrease in the number of small farms which occurred during the 1920's as farm families availed themselves of more favorable non-farm opportunities. The 1930's reversed the trend by a noticeable increase in small or primarily part-time and subsistence farms. Starting in 1940, with the de-

TABLE 5.—Total Number of Farms and Number by Size Groups in Ohio by Census Periods, 1900-1970.

	1900	1910	1920	1930	1940	1950	1960	1970
Total Number of Farms	276,719	272,045	256,695	219,296	233,783	199,359	140,353	111,332
Average Acres per Farm	88.5	88.6	91.6	98.1	93.7	105.2	131.9	153.7
Number of Farms:								
Under 10 Acres	17,347	20,197	15,867	12,550	23,197	18,683	7,094	5,653
10-49 Acres	75,681	69,048	60,147	46,093	53,425	44,076	27,012	19,729
50-99 Acres	89,774	88,047	86,337	71,160	67,951	51,238	34,555	26,333
100-179 Acres	68,976	70,513	71,508	65,649	62,820	54,284	38,619	28,258
180-259 Acres	16,643	16,444	15,601	16,061	17,281	18,919	17,416	13,607
260-499 Acres	7,218	6,902	6,402	6,888	8,006	10,550	13,160	13,452
500 Acres or More	1,080	895	833	895	1,103	1,609	2,497	4,300

TABLE 6.—Acreage of Land Operated Under Different Tenure Systems in Ohio by 10-Year Census Periods, 1900-1970.

Census Period	Total Acreage in Farms		Full Owners		Part Owners		Tenant Operators		Manager Operated	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
1900	24,501,985	100	14,573,982	59.5	2,326,729	9.5	7,036,411	28.7	564,863	2.3
1910	24,105,708	100	[a]		[a]		7,569,390	31.4	504,636	2.1
1920	23,515,888	100	12,698,838	54.0	2,301,215	9.8	7,954,111	33.8	561,724	2.4
1930	21,514,059	100	11,370,226	52.9	3,040,216	14.1	6,707,411	31.2	396,206	1.8
1940	21,907,523	100	11,669,931	53.3	3,059,880	14.0	6,845,380	31.2	332,332	1.5
1950	20,969,411	100	10,886,025	51.9	4,655,482	22.2	5,160,451	24.6	267,453	1.3
1960	18,506,796	100	8,575,460	46.3	5,759,711	31.1	3,907,717	21.2	263,907	1.4
1970	17,111,459	100	8,072,575	47.2	6,529,159	38.2	2,509,725	14.6	NA[b]	NA

[a]In 1910, acres operated by full and part owners were reported jointly. The combined acreage was 16,031,682 acres or 66.5 percent.
[b]In 1970, the acreage operated by managers was not separated from the other three categories.

TABLE 7.—Number of Horses and Mules, Dairy Cows, Beef Cows, and Sheep on Farms in Ohio by Census Periods, 1900-1970.

Census Period	Number of Animals				Number of Animal Units[3]			
					Including horses and mules		Excluding horses and mules	
	Horses and Mules (all ages)[1]	Dairy Cows	Beef Cows	Sheep (One year old and over)	Total[2]	Per 100 Acres in Farms	Total	Per 100 Acres in Farms
1900	894,976	818,239	87,040	2,628,250	2,236,407	9.13	1,430,929	5.84
1910	933,074	905,125	142,261	2,890,163	2,465,184	10.22	1,625,418	6.74
1920	842,320	888,057	137,415	1,566,527	2,096,865	8.92	1,338,777	5.68
1930	526,303	818,417	39,302	1,821,840	1,695,759	7.88	1,222,087	5.68
1940	447,052	992,864	59,476	1,756,523	1,805,992	8.24	1,403,645	6.41
1950	152,853	873,702	138,129	793,996	1,308,198	6.24	1,170,630	5.58
1960	73,664	640,687	283,308	770,836	1,144,460	6.18	1,078,162	5.82
1970	76,674	424,237	340,674	466,929[4]	927,303	5.41	858,296	5.02

[1]Horse and mule numbers are the totals of all ages except in 1940 which only provided the number over 3 months of age. In 1900 and 1910 the numbers were provided by three age groups. Later census reports provided no breakdown by age groups. Consequently, to provide the most nearly comparable series, the total number of all ages was used except for 1940. To convert total horse and mule numbers to animal units, a conversion factor of 0.9 was used to adjust for the lower feed consumption of the younger animals.
[2]In addition to the horses, mules, and dairy cows on farms in 1900, there were 194,737 horses and mules and 50,393 dairy cows in urban and non-farm areas; in 1910, 194,881 horses and mules and 47,054 dairy cows; and in 1920, 95,206 horses and mules and 46,579 dairy cows. Since 1920, animals in urban and non-farm areas decreased rapidly and numbers were not obtained thereafter by the Bureau of Census. Horses, mules, and dairy cows not on farms were not included in the above analysis.
[3]Animal units (A.U.'s) were computed as follows: one horse or mule (all ages) = 0.9 A.U., one dairy cow = 1.0 A.U., one beef cow = 1.0 A.U., and five mature sheep = 1.0 A.U.
[4]The 1970 census only reported total sheep and lambs. Sheep numbers (1 year old and over) were estimated by assuming the same ratio of sheep 1 year old or over to lambs under 1 year as reported in the 1960 census.

TABLE 8.—Farm, Non-Farm, and Total Population in Ohio by Census Periods, 1900-1970.

Census Period	Farm Population[1]		Non-Farm Population		Total Population	
	Total	Per Sq. Mile	Total	Per Sq. Mile	Total	Per Sq. Mile
1900	NA	—	NA	—	4,157,545	101.5
1910	1,244,769	30.4	3,522,352	85.9	4,767,121	116.3
1920	1,133,912	27.7	4,625,482	112.9	5,759,394	140.6
1930	1,004,288	24.5	5,642,409	137.7	6,646,697	162.2
1940	1,070,299	26.1	5,837,313	142.5	6,907,612	168.6
1950	853,088	20.8	7,093,539	173.1	7,946,627	193.9
1960	519,366	12.7	9,187,039	224.2	9,706,405	236.9
1970	370,946	9.1	10,284,071	250.9	10,655,017	260.0

[1]Farm population was first reported in the 1920 census. However, the Bureau of Census estimated farm population by states for 1910. The basis for making the estimate and the number estimated by states are reported in Census Monograph VI, Farm Population of the United States 1920, pages 43-45, and Table 8.

creasing supply of labor and the increasing availability of more efficient large units of planting and harvesting equipment and low cost energy to power them, the average farm size jumped from 94 to 154 acres in 30 years. During those 30 years, the number of farms with less than 180 acres dropped rapidly and the number of farms with 260 acres or more almost doubled.

Land Tenure

The tenure arrangements through which farmers obtain the use of the land they operate is significantly different today than at the beginning of this century. In 1900 about 60 percent of the land in farms was operated by owners who owned all of the land they farmed; 29 percent was operated by tenant operators —farmers who rented all the land they farmed; and less than 10 percent was operated by part owners or farmers who owned some and rented some. Only about 2 percent of the acreage in farms was considered to be operated by managers (Table 6).

By 1970 the tenure situation was: full owner operators about 47 percent of the land in farms, tenant operators about 15 percent, and part owner operators 38.2 percent. The proportion of manager operated land changed little over the period 1900-1960 and was not listed as a separate category in the 1970 census. The sharp increase in the acreage of land operated by farmers who both own and rent is primarily due to two developments. Some farmers who previously owned all of the land they operated decided to expand their operation by renting one or more small farms which for various reasons the owners ceased to operate but desired to retain ownership title. The second development resulted from some farmers who previously rented all of the land operated becoming owner of part of that land either through inheritance or purchase, with the latter being facilitated by both the availability of land released by farmers moving out of agriculture and through improved means of purchase resulting from more favorable credit and farm income.

Number and Density of Roughage and Grazing Types of Livestock

Roughage and pasture-consuming livestock (horses, mules, dairy cows, beef cows, and sheep), the principal users of the state's pasture, grazing land, and harvested roughages such as hay, experienced major changes. In 1900 there were more than 2 million roughage-using animal units on Ohio farms or about 9 units plus replacements per 100 acres. By 1970 the total had declined to less than 1 million units or about 5.4 plus replacements per 100 acres. When horses and mules are excluded from the total and the number of animal units of dairy cows, beef cows, and mature sheep are compared, the decrease in total number was 40 percent and the decrease in number per 100 acres of farmland was 14.0 percent (Table 7).

Among the four types of roughage-consuming livestock, only beef cow numbers were significantly higher in 1970 than in 1900. Dairy cow numbers remained at a fairly constant level from 1900-1950 but have dropped sharply since then. Horses and mules and sheep have registered the greatest declines over the 70-year period analyzed. As sources of power, horses and mules have for all practical purposes ceased to exist except in scattered Mennonite and Amish communities. In subarea 8 where there is a fairly large number of Mennonite and Amish farmers, horse numbers have declined the least over the 70 years analyzed.

In recent years an increase has occurred in the number of horses kept for recreational purposes. Part of this increase has taken place on farms and part on units of land which do not meet the census definition of a farm. Only that part of the increase occurring on farms is reflected in the 1970 census.

Farm and Non-farm Population

In the 70-year period, Ohio's total population increased from 4,157,545 to 10,655,017, or in terms of density per square mile, from 101 to 260 people (Table 8). Farm and non-farm populations were not differentiated until the 1920 census when approximately 20 out of each 100 people were classed as farm and 80 were classed as non-farm.[12] In 1970, 3.5 out of each 100 were classed as farm and 96.5 as non-farm.[13] In terms of density, this was a decrease in the number of farm people per square mile from 27.7 to 9.1. Following the 1920 census, the Census Bureau estimated the farm population for the state for 1910 at 1,244,769 or 30.4 per square mile.

All 11 subareas of the state registered sharp declines in the density of farm population from 1920 to 1970. In only 4 of the 11 subareas were there more than 10 farm people per square mile in 1970. Three of these were in the western half of the state and one, subarea 8, was in the eastern half. Two subareas (9 and 10), both in the southeastern part of the state, declined from 21 to less than 6 farm people per square mile.

[12]Farm population as reported in the 1920 census included "all persons actually living on farms, without regard to occupation, and also those farm laborers (and their families) who, while not living on a farm, nevertheless lived in a strictly rural territory, outside the limits of any city or other incorporated place." This classification was determined for each family at the time of enumeration.

[13]In 1970 and 1960 censuses, rural farm population was defined as comprising all rural residents living on farms. In all other censuses, farm people residing in cities and other territory classified as urban were considered farm population (Source Appendix A PC(1) -C37). Author's note: the change indicated above between the 1950 and 1960 censuses introduces a small downward bias in farm population reported for 1960 and 1970.

OBSERVATIONS, PROJECTIONS, CONCLUSIONS

Contrary to normal expectations, the quantity of agricultural products produced in the state did not decrease as the land in farms dropped from 24.5 million acres in 1900 to 17.1 million acres in 1970. Instead, total production increased as a result of improvements in crop yields, milk production per cow, eggs per hen, etc. During the 10 years 1900-1909, the average crop yields per acre in Ohio were: corn, 36.5 bu.; wheat, 14.6 bu.; oats, 31.8 bu.; tobacco, 865 lb.; and potatoes, 92.4 bu. During the 10-year period 1965-1974, the averages were corn, 82 bu.; wheat, 38 bu.; oats, 58.5 bu.; tobacco, 2,170 lb.; and potatoes, 330 bu. Average annual milk production per cow during the period 1930-1939 was 4,450 lb. and egg production per hen was 124.7. The averages during the period 1965-1974 were 9,870 lb. of milk per cow and 226 eggs per hen.[14]

This increased production, in spite of a greatly reduced farm acreage, has been due to many factors. First and foremost has been the increase in scientific and technological developments and their widespread adoption, together with improved management practices. Important among these are hybridization; improved plant varieties and higher producing animals; increased use of fertilizers, herbicides, and pesticides; more timely planting and harvesting; improvements in the tillage and harvesting of crops; better balanced rations; and disease control for livestock. Second, a shift in emphasis was made from this wide diversification associated with the self-sufficing aspect of the farm organization of the early 1900's to present day commercial agriculture which emphasizes the production of those crops and types of livestock for which the state has the greatest economic advantage. A third factor has been the increase in the installation of drainage systems on individual farms and in organized drainage districts and flood control systems in many parts of the state. A fourth factor has been the shift in the land tenure system from one in which a high percent of the land was operated by farmers who owned no land (full tenants) to one in which most of the land is operated by farmers who own all or a significant part of the land they operate.

Continued increases in production per acre and per unit of livestock undoubtedly can be expected to offset some contractions in the acreage of land in farms. However, increases in yields will depend on the continuation of substantial outlays for research and education; the availability of and permission to use production increasing inputs such as fertilizer, pesticides, feed additives, etc.; a favorable cost-price relationship between inputs and outputs; and reasonably favorable weather conditions.

Although improvements have thus far more than offset the shrinkage in the acreage of land in farms and in acres of crops harvested, the state's potential for further increases in aggregate production has been seriously affected. Between 2 million and 2.5 million acres of capability classes I, II, and III land have been made unavailable to agriculture by the increase since 1900 in urban and related land uses. Further withdrawals of intensively used farmland will continue to take place unless a strong effort is made to restrict future growth of non-farm uses to land with lower agricultural productive capability.

On the other hand, the increase in the area of non-farm idle, brush, and forest land retired during the period 1900-1970 has not reduced the state's potential for future agricultural production. In actuality, the retirement of most of this land has had a positive effect. The discontinuation of cropping and its return to perennial grasses, brush, and/or forest cover stabilized and reversed the severe deterioration taking place. Soil erosion and depleting farming practices commonly employed on much of Ohio's rolling to hilly land had reduced its production potential from the time it was brought into farming in the 1800's.

The land outside of farms in 1970 not occupied by Urban and Built-up Uses amounted to 6.1 million acres. At first thought, this might be considered as land which could readily be brought back into farms if needed since most of it had at one time been cleared and farmed. However, one-third or more of it is so hilly or the soil is so severely eroded that it is excluded for all practical purposes from agricultural uses except for forestry. In 1970, somewhat more than two-thirds of the 6.1 million acres or 4.2 million acres were in forest as defined by CNIC. The remainder or 1.9 million acres were either idle land which had been within the bounds of farms and used for crop production and pasture, most of it as recently as the 1950's and 1960's (see Table 3), or land which had been subjected to strip mining.

Typical of the land which had until recently been in farms are broken down fences, obsolete and collapsing farm buildings, and a land cover of weeds and brush. This land can readily be brought back into farm production if an economic demand for more farm commodities develops. This will be particularly true if the demand is for products such as milk and beef which can to a large extent be provided by a grassland type of farming. Somewhat less investment of capital would be required to return this land to farming than would be needed once it has become reforested. Both types of land, forested and unforested,

[14]Source: Ohio Agricultural Statistics.

would require substantial investments of capital in land improvement, fencing, basic farm buildings, fixtures, machines, and in breeding and producing herds of livestock. The strip mined land and that which will be stripped in the near future, which may soon amount to as much as 0.5 million acres, will have relatively low production capacity for 1 or more decades after efforts at restoration are initiated. Considering the nature of the land, its production capacity, and the present condition of the 6.1 million acres of non-farm land not involved in Urban and Built-up Uses, it is highly improbable that one-half or 3 million of the 6.1 million acres can be or should be shifted back into farms.

The current state of both the domestic and world economies makes it difficult to project future changes in Ohio's land use. It appears unlikely that the recent strong demand for agricultural products will prevent further loss of farmland to urban and related uses. Sharply increased gasoline costs or rationing, if restrictive, will slow down urban and suburban sprawl and under extreme circumstances could result in a small shift of land back into agricultural production. It could also change practices in agriculture which in recent years have had a favorable effect on production per acre to less favorable practices.

Further retirement of farmland due to inadequate returns from farming is likely to slow down in the short run, in view of the currently strong demand for farm commodities. However, in the longer run the pattern will resume the past trend fairly quickly unless the cost-price ratio continues sufficiently favorable to cover total costs on the land currently in farms. Only if the demand for farm commodities gives strong evidence that it will in the long run cover both the costs of production and amortize the capital outlay needed to bring non-farm idle, brush, and forest land back into agricultural production will the area in farms increase. However, before any significant acreage of non-farm idle, brush, or forest land is brought back into farms, land now in farms, especially the cropland held out of production (approximately 1.5 million acres) in compliance with the Agricultural Adjustment Administration, will be brought back into use. The level of intensity of production on existing farms also will be increased. In the past 2 years, both of these developments have been taking place.[15]

A long run strong demand for beef which would favorably affect the profitability of beef cow-calf enterprises, a heavy user of pasture and roughage, would bring some non-farm idle, brush, and woodland back into farming. How extensive the shift would be depends upon reclamation costs, capital availability, and the opportunity for part-time farming, as well as feeder calf prices, all of which are too uncertain to make any projections,

Other Factors

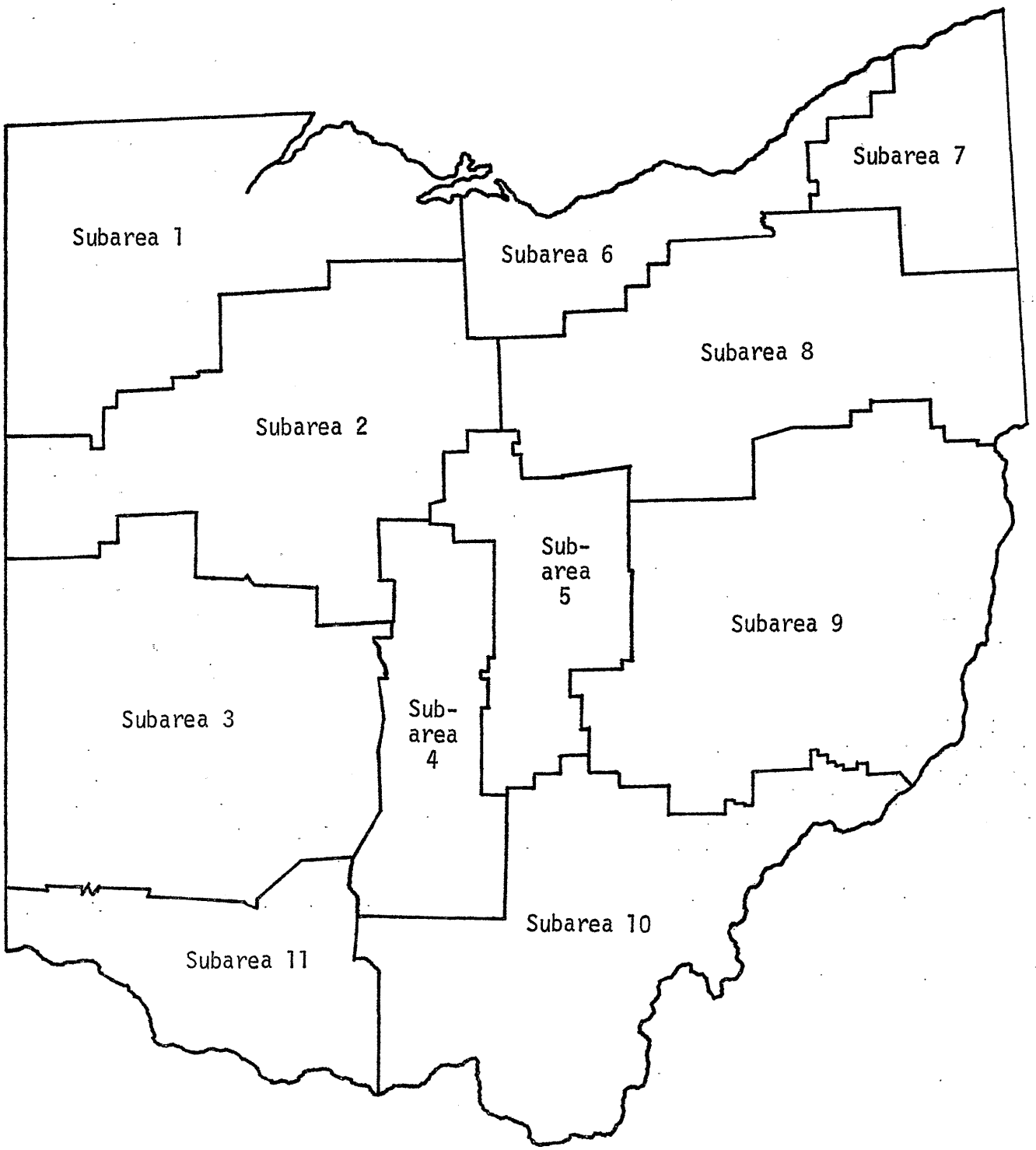
Three other factors may affect the possible shift of land into agricultural production. More land will be needed if the world's needs for food and fiber over the next decade or two are translated into a dependable economic demand, if through export controls or other means U. S. policy does not prevent farmers from taking full advantage of both domestic and world demand, and if essential production inputs such as fuel, fertilizer, pesticides, and capital are available at prices which will permit the viable operation of lower grades of land. If these factors materialize, the downward trend in land in farms, acres of crops harvested, and pastures will be reversed, with the possibility of land in farms increasing to 20 million acres, crops harvested to 10.5 to 11 million acres, and acres pastured to more than 4 million acres.

On the other hand, if world need is not transformed into economic demand due to lack of buying power above that of the decade of the 1960's, and/or if the long-standing U. S. policy of low cost (constant dollars) basic agricultural products leads to export restrictions on U. S. farm commodities in deference to the pressure of the U. S. consumer for low cost food, and/or if the inputs needed for agricultural production are restricted by price or allotment to a level required to meet only the food and fiber needs of the U. S. population, the present land in farms in the nation and Ohio will be ample, even in excess, as it was much of the time from 1920-1970.

U. S. domestic needs for increasing imports of a vast array of raw materials essential to the national economy will require that large amounts of agricultural products be exported to maintain a balance in international payments. Thus, the probability of a national need for increased production of agricultural products is great and will certainly reverse the past trends of land in farms and in acres of crops harvested in the coming decades.

[15]Extensive research was conducted by G. P. Wibberley, Wye College, University of London, during the 1950's to determine the most economic means for replacing agricultural production lost through increasing growth of non-farm uses of land in England. Among the several potentials available, intensification of production on land already in cultivation and reclamation of derelict woodland in or adjacent to existing farms offered the best potentials. He found "the value of agricultural output on 'livestock rearing farms' in the hills to be relatively low on a per acre basis, even after the degree of improvement thought possible has been made." Source: Agriculture and Urban Growth, A Study of the Competition for Rural Land by G. P. Wibberley, Pub. by Michael Joseph, London, 1959, pp. 226-228.

FIG. 4.—Subareas in Ohio.



Part III — Land Use Patterns and Changes by Subareas, 1900-1970

INTRODUCTION

The land use pattern in 1970 and in 1900 and changes in land use and related factors during the intervening 70 years are presented in Part III for each of the 11 subareas.[16] The diversity of the state's physical land resources, briefly discussed in the introductory statement to Part II, makes this necessary if the magnitude and importance of the changes are to be fully realized. The analysis made on a state basis in Part II, although broadly informative, tends to obscure differences both in the current land use patterns over the state and the extent of the changes in the various subareas. For example, the percent of the total land area outside of farms for the state as a whole was 34.7 in 1970 but in subarea 7 it was 65.6 and in subarea 2 it was 7.4 (Table 9). In this table, the 1970 land use pattern is presented for each subarea and the entire state by expressing the acreage of land in the different use categories as a percentage of their respective physical land areas. In subareas 1, 2, and 3 (all in western Ohio), more than 80 percent of the land was in farms, whereas in subareas 6, 7, 9, and 10 (all in eastern Ohio), less than 50 percent was in farms (see Fig. 4).

In 1900, the land use patterns of the subareas were fairly homogenous in several respects. Land in farms ranged from a low of 88.3 percent of the total land area in subarea 10 to a high of 97.7 in subarea 5 (Table 10). However, the next 70 years brought changes in all categories. The magnitude of change was much greater in some categories than others, with the result that the 1970 land use patterns became very heterogeneous in character. For example, the acreage of land in farms in subarea 2 in 1970 was 97.1 percent of that in farms in 1900, while the percent in farms in subarea 7 was only 36.4 of 1900. Land in intertilled crops was more than double that of 1900 in subareas 1 and 2 as compared with subarea 10, in which the land in intertilled crops was only 25.8 percent of 1900 (Table 11).

In general, subareas 1, 2, 3, 4, 5, and 11 (all in western and central Ohio) experienced the smallest decrease in land in farms during the 70 years, while the unglaciated and glaciated sandstone and shale soils in eastern Ohio comprising subareas 6, 7, 8, 9, and 10 registered the most severe reduction in land in farms. In both eastern and western Ohio, the subareas with large metropolitan complexes except subarea 1, involving Toledo, experienced pronounced declines. In subarea 1, the farmland lost to expanding Urban and Built-up Uses was approximately offset by new land being brought into farms as a result of extensive drainage work.

A more detailed description of the land resources, an analysis of land use patterns and changes, and some consideration of possible future trends together with tables of related data for each of the 11 subareas follow.

[16]The subareas were delineated on the basis of physical characteristics which included geological formation, soil type, and topography. Since both sources of statistical data use (the U. S. Census and CNIC reports) are reported for entire counties, the boundaries of the subareas follow county lines and only approximate the true dividing line between the subareas.

TABLE 9.—Land Use in 1970 as a Percentage of the Total Physical Area by Subareas in Ohio.

	Subarea 1	Subarea 2	Subarea 3	Subarea 4	Subarea 5	Subarea 6	Subarea 7	Subarea 8	Subarea 9	Subarea 10	Subarea 11	State
TOTAL LAND AREA	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Land Outside Farms	10.2	7.4	17.3	30.0	27.9	53.5	65.6	47.1	50.7	62.2	34.5	34.7
Urban and Built-up Uses	9.9	6.8	10.8	13.8	6.7	32.0	14.9	16.7	6.3	8.2	15.7	11.0
Other Non-farm	0.3	0.6	6.5	16.2	21.2	21.5	50.7	30.4	44.4	54.0	18.8	23.7
Land in Farms	89.8	92.6	82.6	70.0	72.1	46.5	34.4	52.9	49.3	37.8	65.5	65.3
Crops Harvested												
Intertilled Crops	47.0	42.7	34.2	24.1	17.2	16.6	3.4	9.8	3.0	2.4	12.1	20.9
Small Grain Crops	12.5	11.4	8.3	6.7	6.1	5.5	2.5	6.2	1.6	0.5	2.9	6.2
Hay Crops	4.0	5.4	5.2	4.3	7.0	3.0	5.4	7.7	6.5	3.4	5.0	5.3
Fruit and Berries	0.1	a	a	a	0.2	0.4	0.3	0.2	0.1	a	a	0.1
Total[b]	63.8	59.5	47.7	35.2	30.6	25.8	11.7	24.0	11.3	6.4	20.3	32.5
Cropland Idle, Fallow, and Failed	12.4	12.5	11.5	11.2	10.1	7.7	4.3	6.5	4.0	3.1	9.3	8.4
Cropland Used Only for Pasture	2.1	5.4	7.8	7.7	9.8	2.4	4.2	6.0	8.6	6.2	12.5	6.6
Cropland Total	78.3	77.4	67.0	54.1	50.5	35.9	20.2	36.5	23.9	15.7	42.1	47.5
Permanent Pasture, Woodland, and All Other	11.5	15.2	15.6	15.9	21.6	10.6	14.2	16.4	25.4	22.1	23.4	17.8
All Other Land in Farms[c]	26.0	33.1	34.9	34.8	41.5	20.7	22.7	28.9	38.0	31.4	45.2	32.8

[a]Less than 0.1 percent.

[b]This is the total of all crops harvested including the few miscellaneous minor crops not included in the above four categories. The total of these miscellaneous minor crops ranged in importance from less than 0.1 to 0.3 percent.

[c]Includes cropland idle, fallow, and failed; cropland used only for pasture; and permanent pasture, woodland, and all other land in farms. (This total and that of crops harvested equals the total land in farms.)

TABLE 10.—Land Use in 1900 as a Percentage of the Total Physical Area by Subareas in Ohio.

	Subarea 1	Subarea 2	Subarea 3	Subarea 4	Subarea 5	Subarea 6	Subarea 7	Subarea 8	Subarea 9	Subarea 10	Subarea 11	State
TOTAL LAND AREA	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Land Outside Farms												
Urban and Built-up Uses	1.3	0.9	1.3	2.2	0.6	7.0	0.8	1.5	0.7	0.6	4.3	1.5
Other Non-farm	5.3	3.9	2.5	1.4	1.7	3.8	7.4	5.4	2.8	11.1	2.4	4.5
Total	6.6	4.8	3.8	3.6	2.3	10.8	8.2	6.9	3.5	11.7	6.7	6.0
Land in Farms	93.4	95.2	96.2	96.4	97.7	89.2	91.8	93.1	96.5	88.3	93.3	94.0
Crops Harvested												
Intertilled	22.8	19.6	25.8	23.9	15.4	10.6	6.0	10.3	8.8	9.7	18.9	16.0
Small Grain	20.9	21.3	23.4	18.9	16.5	17.1	10.4	19.8	10.9	8.4	11.9	16.8
Hay Crops	10.5	13.5	9.5	9.7	13.8	14.7	14.6	14.5	13.1	6.8	9.1	11.6
Fruit and Berries	2.1	1.1	1.1	1.3	1.4	3.2	1.5	1.5	1.8	2.3	1.8	1.7
Total[a]	56.7	55.6	60.0	54.1	47.4	46.0	32.7	46.5	34.9	27.5	42.1	46.4
Cropland Idle, Fallow, and Failed[b]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cropland Pastured Only[b]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Permanent Pasture, Woodland, and All Other[b]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
All Other Land in Farms[c]	36.7	39.6	36.2	42.3	50.3	43.2	59.1	46.6	61.6	60.8	51.2	47.6

[a]This is the total of all crops harvested including the few miscellaneous minor crops not included in the above four crop categories. The total of these miscellaneous minor crops ranged in importance from 0.1 to 0.4 percent.

[b]Not available in census until 1925.

[c]Includes cropland idle, fallow and failed; cropland used only for pasture; and permanent pasture, woodland, and all other land in farms. (This total and that of crops harvested equals the total land in farms.)

TABLE 11.—Land Use and Related Factors in 1970 as a Percentage of 1900 by Subareas in Ohio.

	Subarea 1	Subarea 2	Subarea 3	Subarea 4	Subarea 5	Subarea 6	Subarea 7	Subarea 8	Subarea 9	Subarea 10	Subarea 11	State
TOTAL LAND AREA[a]	100.5	99.8	100.3	102.4	101.8	99.6	97.1	99.2	100.5	102.2	102.2	100.6
Land Outside Farms	155.2	153.6	455.3	842.8	1216.1	496.1	778.3	681.0	1448.7	541.1	525.5	579.9
Urban and Built-up Uses	775.5	794.1	841.2	644.8	1150.6	458.1	1952.4	1119.8	896.9	1317.2	371.3	749.3
Other Non-farm	5.0	14.3	258.5	1139.5	1243.7	564.4	662.2	560.4	1588.5	496.5	803.2	521.4
Land in Farms	96.7	97.1	86.2	74.4	75.2	51.9	36.4	56.3	51.3	43.8	71.7	69.8
Crops Harvested	113.2	106.7	79.8	66.5	65.7	55.7	35.0	51.1	41.0	23.9	49.2	70.7
Intertilled Crops	207.4	217.7	132.8	103.3	113.7	156.5	55.1	94.3	34.8	25.8	65.4	131.0
Small Grain Crops	60.2	53.6	35.6	36.4	37.4	32.2	23.9	31.0	15.1	6.3	24.8	37.0
Hay Crops	37.7	39.2	55.4	44.4	51.3	20.7	36.0	53.3	49.2	51.9	56.2	45.9
Fruit and Berries	6.8	3.6	5.1	5.0	12.3	11.1	21.4	14.9	6.1	4.0	3.6	7.6
Cropland Idle, Fallow, and Failed, Percent of 1930	325.0	335.8	292.3	348.2	294.6	133.5	66.5	109.9	96.7	75.8	150.6	191.2
Cropland Pastured Only, Percent of 1930	44.6	88.2	72.3	85.0	188.5	138.1	NA	351.6	751.4	144.9	150.5	131.3
Permanent Pasture, Woodland and All Other, Percent of 1930	55.2	58.6	69.5	51.6	52.2	45.3	37.2	47.7	47.1	44.5	59.5	51.6
Number of Farms	45.7	54.3	50.7	38.4	47.1	27.6	26.1	38.7	30.2	26.0	43.0	40.2
Average Size	212.0	178.5	170.1	195.8	158.7	188.3	139.0	145.4	169.6	168.4	165.6	173.7
Number with 180 Acres or More	328.6	193.3	148.6	94.4	120.0	110.0	54.5	104.2	83.0	64.5	121.4	125.7
Pasture and Roughage-Consuming Animal Units (Total) per 100 Acres in Farms	23.0	42.6	55.3	49.6	51.9	21.3	31.2	52.3	38.2	42.1	56.8	42.4
	24.0	44.1	64.2	67.5	68.9	41.0	85.7	93.2	75.0	95.3	80.3	56.1
Population Total, Percent of 1900	194.6	149.0	286.8	377.7	192.3	392.9	349.1	381.7	124.0	117.0	207.8	256.3
Farm Population, Percent of 1930	47.1	49.4	44.0	27.2	35.1	29.2	29.0	42.8	24.8	18.3	37.0	37.0
Non-farm Population, Percent of 1930	166.5	179.7	238.2	236.7	232.5	165.2	231.1	179.0	126.0	154.4	172.1	182.3

[a]The land area of the state and counties is listed by the census as "approximate". It was held constant through 1930. However, since then each decennial census report has listed minor changes in some counties and in the state total.

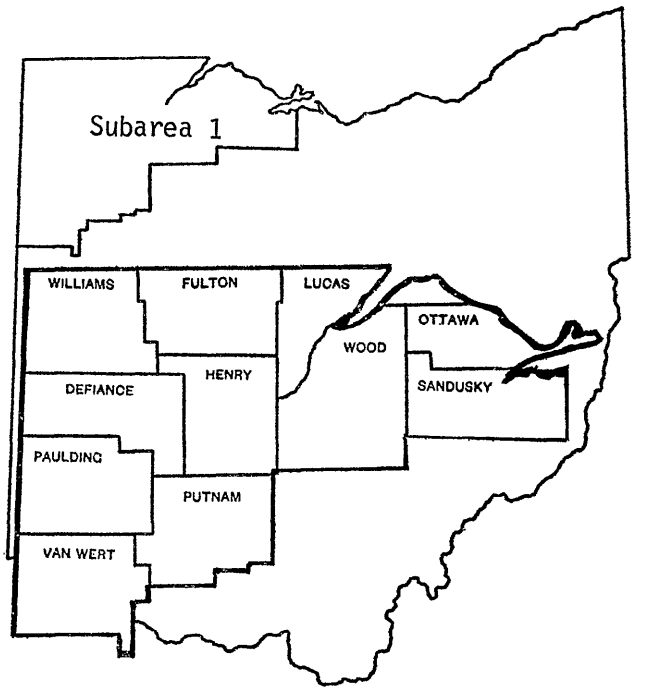
SUBAREA 1
NORTHWESTERN GLACIAL LAKE COUNTIES

This subarea comprises 11 counties in the extreme northwestern part of the state. Most of the area was covered by water (Lake Maumee) some thousands of years ago during the glacial period. The soils are high lime glacial lake sediments except in the extreme northwestern part, where they are high lime glacial drift soils of the Wisconsin Age.

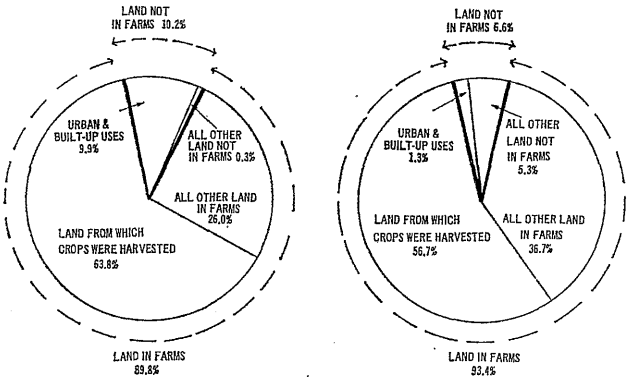
While approximately 78 percent of the total land area was invoiced by the CNIC as capability classes I and II, the drainage problem is primarily responsible for most of this land being capability II rather than I. The inventory also classified 97.6 percent of the land as capable of being used for crop production if suitable erosion control practices are employed. In terms of percent of land considered suitable for cropping, this subarea ranks second in the state. Topographically, with minor exceptions, the area is quite level and when artificially drained is highly productive. Both rainfall and growing season are favorable for crop production. The Toledo metropolitan complex centering in Lucas County is the major competitor in the area for land.

In This Area in 1970:

- 89.8 percent of the total land area was in farms, 9.9 percent was in Urban and Built-up Uses, and only 0.3 percent was neither in farms nor Urban and Built-up Uses.
- 71.0 percent of the land in farms was in harvested crops.
- 73.9 percent of the acreage of crops harvested was intertilled, 19.7 percent was small grain, and 6.2 percent was crops harvested for hay, with the latter lowest in any of the 11 subareas. Only 0.2 percent of the acreage harvested was fruit and berries.
- Soybeans was the most important single crop in terms of acreage harvested with 746,332 acres, followed by corn with 568,815 acres.
- 30,230 acres of vegetable crops were harvested for sale. These were primarily for processing and represented 45.3 percent of the total acreage of vegetable crops harvested for sale in the state.
- 28,090 acres of sugarbeets were harvested. This represented 72 percent of the state's sugarbeet acreage.
- The average acreage of land per farm was 161.7, fourth largest in the state. Approximately one farm out of each five contained 260 acres or more.
- 55.2 percent of the land in farms was operated by farmers who both own and rent land, 26.6 percent by full owner operators, and 18.2 percent by full tenant operators.



Land Use in Subarea 1, 1970 (left) and 1900 (right).



Land Uses in Subarea 1

Categories of Use	1970 Acres	1970 Percent	1900 Acres	1900 Percent
Land in Farms				
In Crops Harvested	1,878,412	63.8	1,659,916	56.7
In All Other Uses	765,182	26.0	1,074,033	36.7
Total	2,643,594	89.8	2,733,949	93.4
Land Not in Farms				
Urban and Built-up Uses				
Urban and Built-up Areas	278,237		NA	
Federal Non-cropland	5,954		NA	
Water Areas	7,380		NA	
Total Urban and Built-up Uses	291,571	9.9	37,584	1.3
All Other Land Not in Farms	7,745	0.3	155,187	5.3
Total Land Not in Farms	299,316	10.2	192,771	6.6
Total Physical Area (Farm and Non-farm)	2,942,910	100.0	2,926,720	100.0

• The number of animal units of roughage and pasture-consuming livestock per 100 acres of land in farms was 2.0. This was the lowest of any of the 11 subareas.

• Farm population per square mile was 13.1. This was the highest of any of the 11 subareas.

Data on Land Use and Selected Factors Show:

• A nearly stable acreage of land in farms. All other subareas except subarea 2 situated immediately to the south registered significant decreases ranging from 13.8 to 63.6 percent between 1900 and 1970.

• A substantial increase in the acreage of crops harvested—1,659,916 acres in 1900 to 1,991,742 in 1960. Due to farmer compliance with the Agricultural Adjustment program during the period 1960-1970, acres of crops harvested decreased to 1,878,412 and the acreage of cropland classified as idle, fallow, and failed increased from 78,670 to 366,967, with a major part of the latter being idle and thus readily available for crop production.

• A large increase in intertilled crops and decreases in both small grain and hay crops harvested.

• Three crops fairly important in the economy of the area in 1900—hay, potatoes, fruits and berries—have decreased fairly steadily throughout the period and are currently sharply below their 1900 acreage.

• Two crops not reported as produced in the area in 1900—soybeans and sugarbeets—were important crops in 1970. A third crop—vegetables produced for sale—although important in 1900, increased significantly in importance over the 70-year period.

• In this area, the change in size of farm measured in acres of land made one of the most, if not the most, significant change of any of the 11 areas between 1900 and 1970. In this period, the 34,203 farms containing less than 180 acres decreased to 11,109, a decrease of 67.5 percent, and farms with 260 acres or more increased from 425 to 3,150, an increase of 641 percent. Farms with 10 to 49 acres were the first to decrease, followed by the 50-99 acre group, then the 100 to 179 acre group, and the last to decrease, the under 10 acre units. Following the 1920 census, three sizes of farm groups—180-259 acres, 260-499 acres, and 500 acres and over—registered significant increases. However, following the 1960 census, farms with 180-259 acres also registered a decrease.

• Over the 70 years, the proportion of the acreage of land in farms operated by full owner and full tenant operators decreased steadily while the importance of the part owner, part renter group increased. Consolidation of small farms into large operating units by full owner operators renting additional land and the purchase or inheritance of part of the land operated by full tenant operators accounts for the sharp rise in the part owner group.

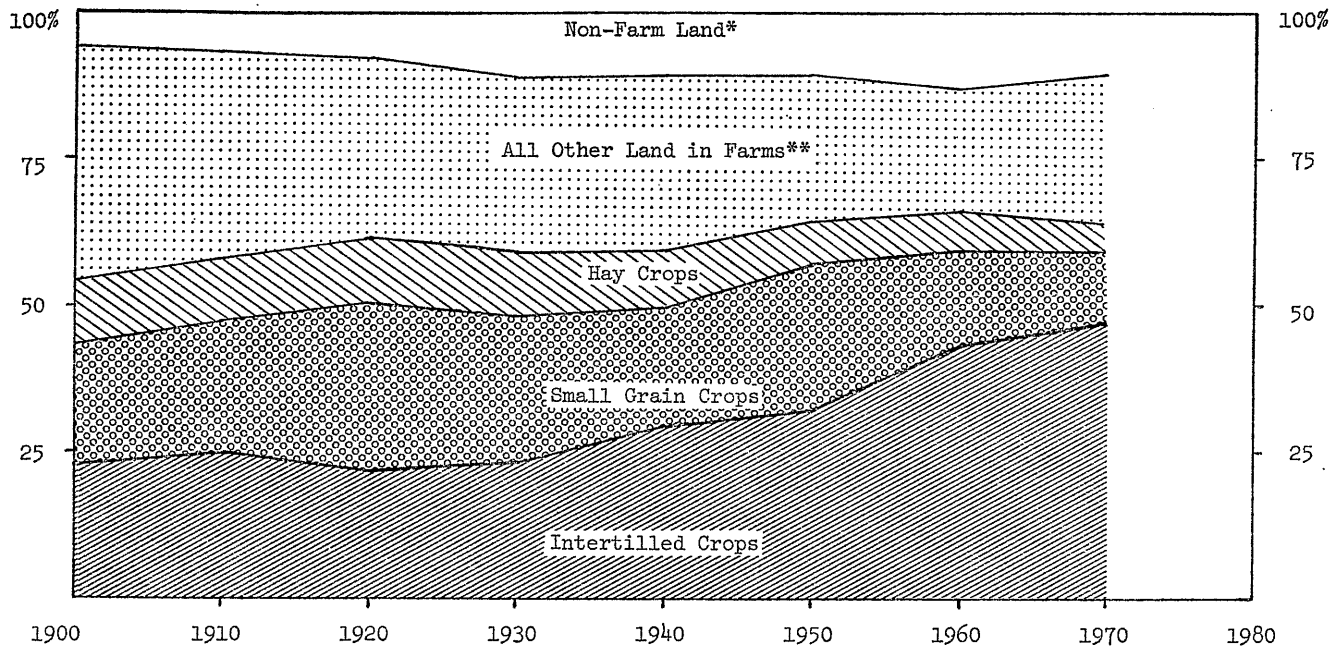
• Total roughage and pasture-consuming animal units per 100 acres in farms in 1900 was 8.6 (state average was 9.1). They decreased to 2.0 in 1970, the lowest in the state.

• Between 1930 and 1970, the farm population per square mile dropped from 27.8 to 13.1. All of the other subareas, except the one immediately to the south, registered sharper decreases.

Some General Observations

In view of the generally level topography and the large amount of land in soil capability classes I and II, agricultural uses will continue to compete strongly with non-farm uses for the land. Likewise, the nature of the topography and the quality of the soil, both of which are well adapted to the production of grain crops and the use of large units of farm equipment, can be expected to result in further consolidation of farms into larger operating units. Roughage (hay and pasture) consuming animal units will continue to be a minor factor in the total agricultural economy of the area. Vegetable crops produced for sale and sugarbeets will be increasingly important crops. Under favorable farm commodity prices, woodland in farms in the area will continue to be cleared, drained, and converted into cropland.

Land Use in Subarea 1 by Census Periods, 1900-1970.



*Includes Urban and Built-up Uses, scattered non-farm rural residences, brush, forest, and wasteland outside farms.
**Includes cropland which is idle, fallow, and failed; cropland used only for pasture; non-cropland, non-woodland pasture; woodland; and land occupied by farmsteads, farm roads, ponds, and wasteland.

TABLE 12.—Total Land Area and Acreage by Different Use Categories, Ohio Subarea 1, by Census Periods, 1900-1970.

Census Period	Total Land Area	Total Land Outside Farms	Land in Farms						
			Total in Farms	Cropland				Woodland Pastured & Not Pastured	All Other Land in Farms[2]
				Cropland Total[1]	Harvested	Idle, Fallow and Failed	Pastured Only[1]		
1900	2,926,720	192,771	2,733,949	NA	1,659,916	NA	NA	NA	NA
1910	2,926,720	197,890	2,728,830	NA	1,751,213	NA	NA	332,151	NA
1920	2,926.720	244,314	2,682,406	NA	1,817,992	NA	NA	271,559	NA
1930	2,926,720	329,365	2,597,355	2,034,525	1,776,410	112,932	NA	245,152	NA
1940	2,943,360	316,898	2,626,462	2,032,943	1,783,841	92,248	NA	203,894	NA
1950	2,943,360	321,399	2,621,961	2,127,815	1,927,296	69,050	131,469	235,894[3]	258,252
1960	2,943,360	386,139	2,557,221	2,154,042	1,991,742	78,670	83,630	187,851	215,328
1970	2,942,910	299,316	2,643,594	2,310,064	1,878,412	366,967	64,685	161,490	172,040

[1]Total Cropland and Cropland Used Only for Pasture were not reported in censuses prior to 1950. In 1930 and 1940, the census reported an acreage of Plowable Pasture, defined as the land used only for pasture which could have been used for crops without clearing and draining. As interpreted by most farmers, this included their open (brush and tree-free) permanent pasture, as well as their cropland used only for pasture. Consequently, it could not be added to the acreage of crops harvested and the idle, fallow, and failed acres to obtain a Total Cropland acreage. In 1950, the Bureau of the Census shifted from the classification of Plowable Pasture to Cropland Used Only for Pasture, and obtained an acreage figure which, although it probably still contained some permanent pasture land, was considered a sufficiently reliable reflection of cropland to permit the reporting of a Total Cropland acreage.
[2]Non-crop, non-woodland pasture and land in house and barn lots, lanes, roads, ditches, ponds, and wasteland.
[3]No definition was given farm operators or census enumerators in 1950, which may explain this improbable increase.

TABLE 13.—Acreage of Principal Crops Harvested by Types of Crops, Ohio Subarea 1, by Census Periods, 1900-1970.

	1900	1910	1920	1930	1940	1950	1960	1970
Row or Intertilled Crops								
Corn, All Purposes	634,229	637,746	564,491	594,447	590,058	572,951	673,438	568,815
Soybeans	NA	NA	NA	8,457	186,828	311,925	557,669	746,332
Potatoes, Irish & Sweet	20,646	21,136	11,580	11,856	9,749	2,712	1,939	2,727
Vegetables for Sale	11,335	16,418	8,124	16,150	30,163	25,086	22,583	30,230
Tobacco	15	27	12	0	0	0	0	0
Sugarbeets	NA	6,595	31,410	16,794	33,509	16,545	15,295	28,090 a/
Popcorn	902	NA	NA	561	3,210	2,992	5,268	7,160 a/
Total	667,127	681,922	615,617	648,265	853,517	932,211	1,276,192	1,383,354
Small Grain								
Wheat	309,348	173,104	389,904	232,922	288,884	400,215	192,288	233,838
Oats	267,184	458,820	379,157	439,470	287,851	326,723	252,508	
Barley	27,436	16,922	46,482	38,500	5,597	1,373	6,222	135,090
Rye	4,552	8,009	12,416	2,821	4,185	3,238	5,213	
Mixed & Other Grains	3,944	2,096	1,927	6,911	8,022	5,194	11,723	
Total	612,464	658,951	829,986	720,624	594,539	736,743	467,954	368,928
Hay Crops Harvested	308,513	367,000	349,679	342,191	282,966	229,211	201,404	116,343
Fruit, Nuts, Berries	62,600 b/	43,340 b/	22,710 b/	24,574	16,605	11,127	5,504	4,346
Total Crops Harvested c/	1,650,704	1,751,213	1,817,992	1,735,654	1,747,629	1,909,292	1,951,054	1,872,971

[a]Source: Crop Reporting Service.
[b]Derived by converting number of trees and vines to acres.
[c]See section on Discrepancies, page 5.

TABLE 14.—Total Number of Farms and Number by Size Groups, Ohio Subarea 1, by Census Periods, 1900-1970.

	1900	1910	1920	1930	1940	1950	1960	1970
Total Number of Farms	35,798	33,260	31,535	27,349	26,615	23,625	18,531	16,350
Average Acres Per Farm	76.4	82.0	85.1	95.0	98.7	111.0	138.9	161.7
Number of Farms:								
Under 10 Acres	1,592	1,645	1,356	1,623	2,073	2,107	956	796
10 - 49 Acres	11,612	8,361	6,943	5,099	5,031	4,188	2,972	2,986
50 - 99 Acres	13,724	13,414	13,079	9,681	8,369	5,877	4,187	3,576
100 - 179 Acres	7,275	8,204	8,559	8,553	7,604	7,413	5,362	3,751
180 - 259 Acres	1,170	1,237	1,231	1,750	2,622	2,643	2,793	2,091
260 - 499 Acres	387	367	349	610	850	1,277	2,028	2,466
500 Acres or More	38	32	18	33	62	120	233	684

TABLE 15.—Acreage of Land Operated Under Different Tenure Systems, Ohio Subarea 1, by Census Periods, 1900-1970.

Census Period	Total Acreage in Farms		Full Owners		Part Owners		Tenant Operators		Manager Operated	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
1900 a/	2,733,949	100	N/A		N/A		N/A		N/A	
1910 a/	2,728,830	100	N/A		N/A		N/A		N/A	
1920	2,682,406	100	1,131,255	42.1	409,903	15.3	1,109,649	41.4	31,599	1.2
1930	2,597,355	100	892,548	34.4	676,292	26.0	998,021	38.4	30,494	1.2
1940	2,626,462	100	894,561	34.0	675,022	25.7	1,036,580	39.5	20,299	0.8
1950	2,621,961	100	848,633	32.4	852,269	32.5	905,252	34.5	15,807	0.6
1960	2,557,221	100	719,181	28.1	1,088,456	42.6	737,347	28.8	12,232	0.5
1970	2,643,594	100	703,795	26.6	1,459,469	55.2	480,430	18.2	N/A	

[a]Available for total state only in 1900 and 1910 census reports.

TABLE 16.—Number of Horses and Mules, Dairy Cows, Beef Cows, and Sheep on Farms, Ohio Subarea 1, by Census Periods, 1900-1970.

Census Period	Number of Animals				Number of Animal Units 3/			
					Including horses and mules		Excluding horses and mules	
	Horses and Mules (all ages) 1/	Dairy Cows	Beef Cows	Sheep (One year old & over)	Total 2/	Per 100 Acres in Farms	Total	Per 100 Acres in Farms
1900	113,269	90,324	7,965	171,892	234,609	8.6	132,667	4.9
1910	123,052	108,686	14,059	168,948	267,282	9.8	156,535	5.7
1920	109,853	102,875	9,515	74,409	226,140	8.4	127,272	4.7
1930	71,135	94,935	2,907	120,386	185,941	7.2	121,919	4.7
1940	54,547	106,347	4,129	115,559	182,679	7.0	133,587	5.1
1950	6,322	84,568	6,455	50,792	106,871	4.1	101,181	3.9
1960	3,089	50,880	10,851	46,843	73,880	2.9	71,100	2.8
1970	5,206	29,190	12,541	28,513 4/	52,119	2.0	47,434	1.8

[1]Horse and mule numbers are the total of all ages except in 1940, which only provided the number over 3 months of age. In 1900 and 1910, the numbers were provided by three age groups. Later census reports provided no breakdown by age groups. Consequently, to provide the most nearly comparable series, the total number of all ages was used except for 1940. To convert total horse and mule numbers to animal units, a conversion factor of 0.9 was used to adjust for the lower feed consumption of the young animals.

[2]In addition to the horses, mules, and dairy cows on farms in 1900, there were 194,737 horses and mules and 50,393 dairy cows in urban and non-farm areas of the state; in 1910, 194,881 horses and mules and 47,054 dairy cows; and in 1920, 95,206 horses and mules and 46,579 dairy cows. Since 1920, animals in urban and non-farm areas decreased rapidly and numbers were not obtained thereafter by the Bureau of the Census. Horses, mules, and dairy cows not on farms were not included in the above analysis.

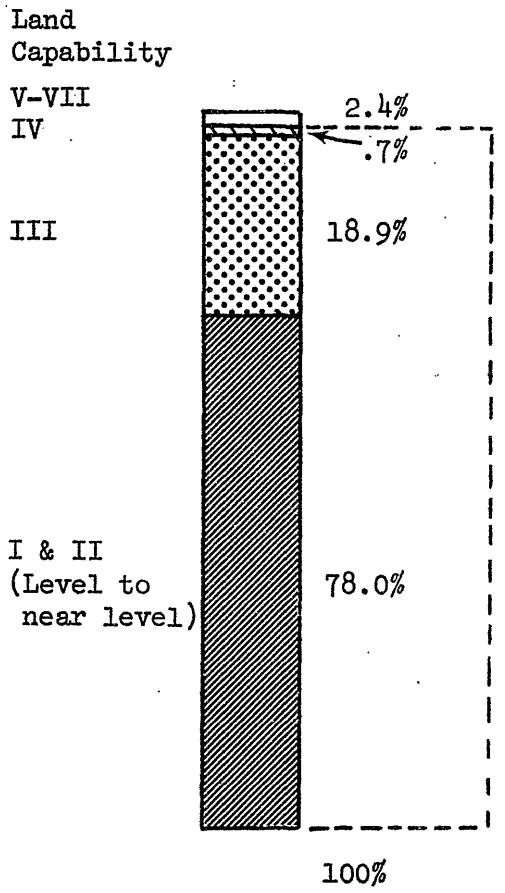
[3]Animal units (A.U.'s) were computed as follows: one horse or mule (all ages) = 0.9 A.U., one dairy cow = 1.0 A.U., one beef cow = 1.0 A.U., and five mature sheep = 1.0 A.U.

[4]The 1970 census only reported total sheep and lambs. Sheep numbers (1 year old and older) were estimated by assuming the same ratio of sheep 1 year old or over to lambs under 1 year as reported in the 1960 census.

TABLE 17.—Farm, Non-Farm, and Total Population, Ohio Subarea 1, by Census Periods, 1900-1970.

Census Period	Farm Population		Non-Farm Population		Total Population	
	Total	Per Sq. Mile	Total	Per Sq. Mile	Total	Per Sq. Mile
1900	NA	--	NA	--	453,508	98.6
1910	NA	--	NA	--	477,139	103.8
1920	NA	--	NA	--	550,595	119.7
1930	127,707	27.8	493,841	107.4	621,548	135.2
1940	126,657	27.5	498,407	108.4	625,064	135.9
1950	97,792	21.3	600,343	130.6	698,135	151.8
1960	76,098	16.5	735,370	159.9	811,468	176.5
1970	60,129	13.1	822,449	178.9	882,578	191.9

Land Capability, Subarea 1



2.4 % Suitable for permanent grazing and/or forest, generally not suitable for cultivation.

97.6 % Suitable for cropping with increasing degrees of erosion control practices and management problems in moving from I to IV.

100.0 % See appendix for land capability characteristics and use restrictions.

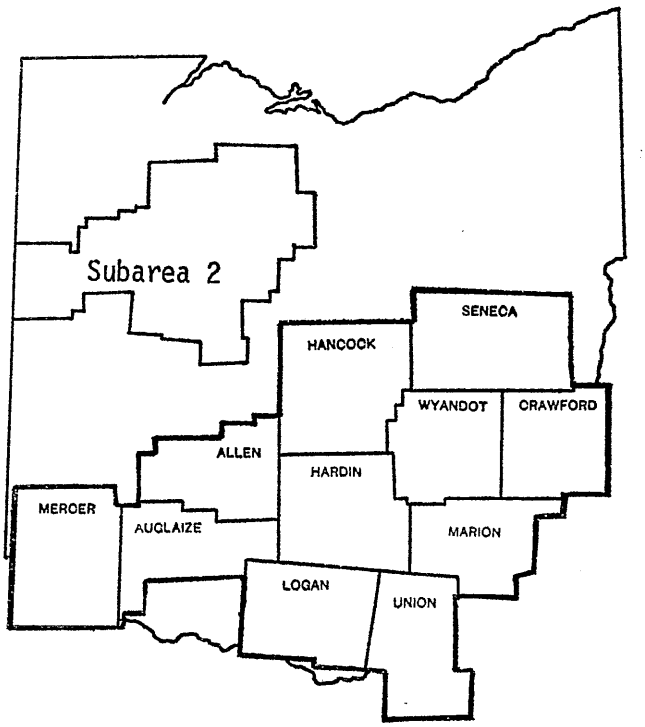
SUBAREA 2
WESTERN OHIO "BACKBONE" OR WATERSHED COUNTIES

This 11-county subarea is the southern half of the northwestern quarter of Ohio. The northern part drains north into the Great Lakes-St. Lawrence River system, while the southern part drains south into the Ohio and Mississippi River system. It has a level to undulating terrain of predominantly high lime, Wisconsin glacial drift soils of Blount-Pewamo and Blount-Morley-Pewamo series, with sizeable islands or pockets of glacial lake sediments of the Montgomery-Pewamo-Del Rey series.

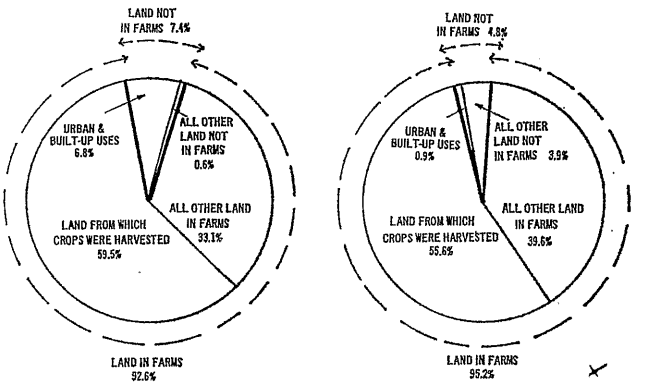
Approximately 90 percent of the total land area was invoiced by the CNIC as capability classes I and II land. Poor natural drainage rather than erosion is responsible for most of the land being capability II rather than I. The committee also classified 99 percent of the land as capable of being used for crop production if suitable erosion control practices are employed. With the favorable rainfall and growing season prevailing in the area, the soils are highly productive when adequately drained. Urban competition for land has been relatively minor.

In This Area in 1970:

- 92.6 percent of the total land area was in farms, the highest percentage of any of the 11 subareas.
- 64.2 percent of the land in farms was in harvested crops.
- 71.8 percent of the acreage of crops harvested was intertilled, 19.2 percent was small grain, and 8.9 percent was hay crops. Only 0.1 percent was harvested as fruit and berries.
- Soybeans was the most important single crop with 703,347 acres, followed by corn with 617,332 acres.
- Three minor crops of some importance in the area were vegetables for sale (mostly crops for processing) with 5,852 acres or 8.7 percent of the state's total acreage, sugarbeets with 9,120 acres or 23.5 percent, and popcorn with 7,240 acres or 36.2 percent.
- The average size of farm measured in acres was 166.7 (second largest of the subareas). Approximately one farm in five contained 260 acres or more.
- 46.6 percent of the land in farms was operated by farmers who both own and rent land, 36.5 percent by full owner operators, and 16.9 percent by tenant operators.
- The number of animal units of horses and mules, dairy cows, beef cows, and sheep per 100 acres of land in farms was 4.1, the second lowest level of roughage and pasture-consuming livestock in the state. Slightly more than half of these were dairy cows.



Land Use in Subarea 2, 1970 (left) and 1900 (right).



Land Uses in Subarea 2

Categories of Use	1970 Acres	1970 Percent	1900 Acres	1900 Percent
Land in Farms				
In Crops Harvested	1,873,816	59.5	1,756,245	55.6
In All Other Uses	1,044,278	33.1	1,249,177	39.6
Total	2,918,094	92.6	3,005,422	95.2
Land Not in Farms				
Urban and Built-up Uses				
Urban and Built-up Areas	207,225		NA	
Federal Non-Cropland	1,709		NA	
Water Areas	5,468		NA	
Total Urban and Built-up Uses	214,402	6.8	26,983	0.9
All Other Land Not in Farms	17,702	0.6	124,075	3.9
Total Land Not in Farms	232,104	7.4	151,058	4.8
Total Physical Area (Farm and Non-farm)	3,150,198	100.0	3,156,480	100.0

• Farm population was 12.4 per square mile, the second highest density of farm people among the 11 subareas. Non-farm population per square mile was 96.0, third lowest in the state.

Data on Land Use and Selected Factors Show:

• The near stability of acres of land in farms. All other subareas except subarea 1 immediately to the north registered significant decreases over the 70 years, ranging from 13.8 to 63.6 percent.

• The substantial increase in the acreage of crops harvested—1,756,245 acres in 1900 to 1,976,563 in 1960. Due to farmer compliance with the Agricultural Adjustment program during the period 1960-1970, acres of crops harvested decreased to 1,873,816. However, the acreage of cropland classified as idle, fallow, and failed increased from 86,330 in 1960 to 394,911 acres in 1970, with a major part being idle or fallow and thus readily available for crop production.

• The doubling of the acreage of intertilled crops —617,151 in 1900 to 1,343,810 in 1970 or from 35.2 to 71.8 acres out of each 100 acres of crops harvested.

• The stability of the acreage of corn harvested in the area. The average of the eight census periods was 631,000 acres, with the lowest 593,349 acres in 1900 and the highest 728,975 acres in 1960.

• The accelerating rate of increase in soybean acreage from 22,992 acres in 1930 to surpass corn as the leading crop in 1970 with 703,347 acres.

• During the first 50 years, 1900-1950, small grain acreage remained fairly stable, fluctuating between a low of 556,421 acres in 1940 and a high of 768,466 in 1920. However, since 1950 it has dropped from 691,323 acres to 360,372 in 1970.

• Crops harvested for hay declined each of the six census periods following 1910 when the acreage of crops harvested for hay totaled 455,468. In 1970, 166,752 acres of hay crops were harvested.

• A steady decrease in number of farms and increase in acreage of land per farm. During the 70-year period, the total number of farms dropped from 32,188 to 17,508. The three farm size groups under 10 acres, 10-49 acres, and 50-99 acres absorbed practically all of the reduction. During the 40 years 1930-1970, farms with 500 acres or more increased from 101 to 832.

• A decrease in amount of land in farms operated by farmers who owned no land and an increase in land operated by farmers who owned part and rented part. In the 50 years 1920 to 1970, the percent operated by tenant operators dropped from 41.1 to 16.9 and the percent operated by farmers owning part and renting part increased from 12.0 to 46.6.

• The decline in animal units of roughage and pasture-consuming livestock from 9.6 to 4.1 per 100 acres of land in farms when horses and mules are included and from 6.0 to 3.8 when horses and mules are excluded.

• The decline in farm population per square mile from 25.1 in 1930 to 12.4 in 1970, although a drop of slightly more than half, was the smallest decline of any of the 11 subareas and the increase in non-farm population from 53.4 to 96.0 in the same period was the third smallest increase in the state. Only subareas 9 and 10 experienced smaller increases in non-farm population.

Some General Observations

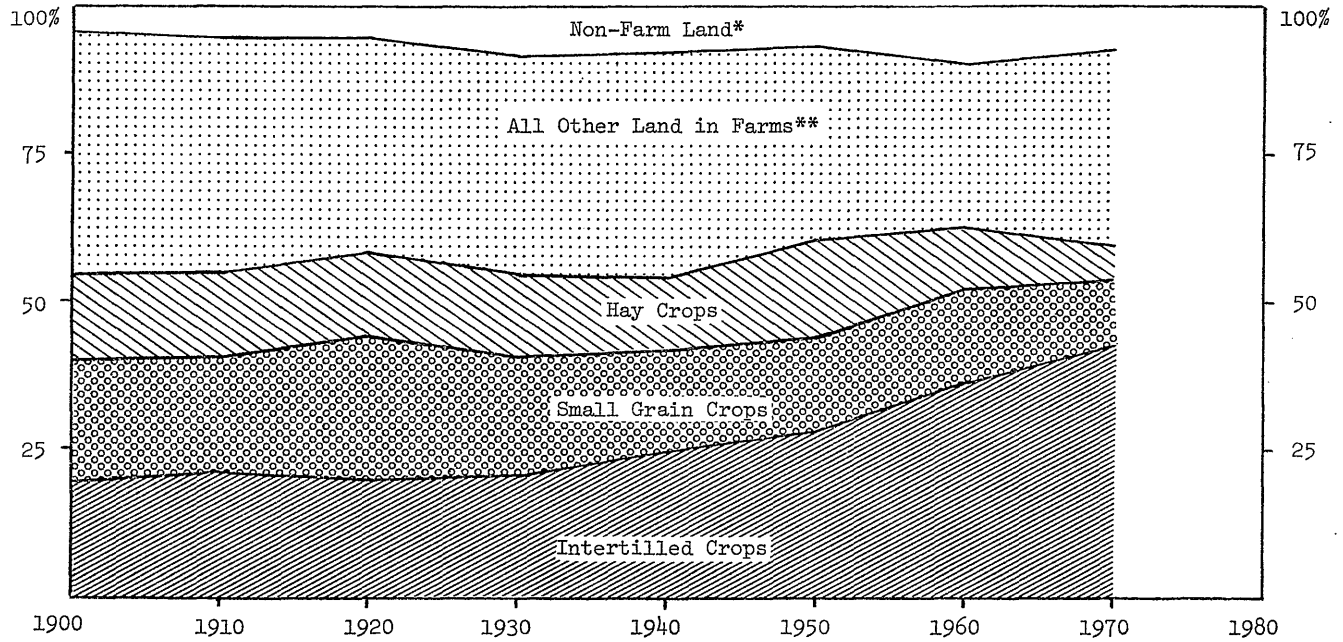
This subarea has the highest percentage of land in farms of any in the state and can be expected to hold this position indefinitely. Furthermore, the percentage of land in farms will remain high as a result of the high quality of its land for agriculture, the relative absence of any urban centers in or immediately adjacent to it which are likely to expand rapidly in the near future, and the absence of those natural and economic factors leading to a significant expansion in non-farm uses of land for transportation, industry, recreation, public administration, water storage, etc.

If adequate commercial nitrogen, other plant nutrients, and effective pesticides are available, continuous cropping with intertilled crops will increase and other crops, especially oats and meadow crops, will continue to decrease. The size of farm operating units will continue to increase rapidly for at least another decade, with much of the expansion achieved through owning part and renting part.

Animal units of roughage and pasture-consuming livestock will decline further and farm fences will continue to be eliminated for the most part. Livestock operations will tend to be total or near total confinement and will largely consist of grain consuming types. Under favorable farm commodity prices, woodland in farms in the area will continue to be cleared, drained, and converted into cropland.

The non-farm population of the area will continue its slow increase. Farm population will continue to decrease as elderly farmers retire and young people avail themselves of non-farm opportunities elsewhere.

Land Use in Subarea 2 by Census Periods, 1900-1970.



*Includes Urban and Built-up Uses, scattered non-farm rural residences, brush, forest, and wasteland outside farms.
**Includes cropland which is idle, fallow, and failed; cropland used only for pasture; non-cropland, non-woodland pasture; woodland; and land occupied by farmsteads, farm roads, ponds, and wasteland.

TABLE 18.—Total Land Area and Acreage by Different Use Categories, Ohio Subarea 2, by Census Periods, 1900-1970.

Census Period	Total Land Area	Total Land Outside Farms	Land in Farms						
			Total in Farms	Cropland				Woodland Pastured & Not Pastured	All Other Land in Farms[2]
				Cropland Total[1]	Harvested	Idle, Fallow and Failed	Pastured Only[1]		
1900	3,156,480	151,058	3,005,422	NA	1,756,245	NA	NA	NA	NA
1910	3,156,480	186,993	2,969,487	NA	1,759,492	NA	NA	368,216	NA
1920	3,156,480	190,115	2,966,365	NA	1,862,174	NA	NA	343,196	NA
1930	3,156,480	288,290	2,868,190	2,051,577	1,739,736	117,631	194,210	298,738	NA
1940	3,151,360	244,202	2,907,158	2,038,122	1,726,373	74,802	236,947	255,129	NA
1950	3,151,360	230,025	2,921,335	2,224,051	1,917,193	66,117	240,741	304,924[3]	392,360
1960	3,151,360	322,194	2,829,166	2,257,535	1,976,563	86,330	194,642	261,018	310,613
1970	3,150,198	232,104	2,918,094	2,439,887	1,873,816	394,911	171,160	245,028	233,179

[1]Total Cropland and Cropland Used Only for Pasture were not reported in censuses prior to 1950. In 1930 and 1940, the census reported an acreage of Plowable Pasture, defined as the land used only for pasture which could have been used for crops without clearing and draining. As interpreted by most farmers, this included their open (brush and tree-free) permanent pasture, as well as their cropland used only for pasture. Consequently, it could not be added to the acreage of crops harvested and the idle, fallow, and failed acres to obtain a Total Cropland acreage. In 1950, the Bureau of the Census shifted from the classification of Plowable Pasture to Cropland Used Only for Pasture, and obtained an acreage figure which, although it probably still contained some permanent pasture land, was considered a sufficiently reliable reflection of cropland to permit the reporting of a Total Cropland acreage.
[2]Non-crop, non-woodland pasture and land in house and barn lots, lanes, roads, ditches, ponds, and wasteland.
[3]No definition was given farm operators or census enumerators in 1950, which may explain this improbable increase.

TABLE 19.—Acreage of Principal Crops Harvested by Types of Crops, Ohio Subarea 2, by Census Periods, 1900-1970.

	1900	1910	1920	1930	1940	1950	1960	1970
Row or Intertilled Crops								
Corn, All Purposes	593,349	635,674	617,368	624,300	597,431	634,724	728,975	617,332
Soybeans	NA	NA	NA	22,992	153,961	250,797	398,756	703,347
Potatoes, Irish & Sweet	14,081	17,442	9,710	10,313	7,101	1,496	873	887
Vegetables for Sale	9,163	12,891	6,067	7,554	5,596	4,743	5,616	5,852
Tobacco	124	220	33	NA	NA	NA	NA	32
Sugarbeets	NA	390	2,014	862	8,212	4,647	4,963	9,120 a/
Popcorn	434	NA	NA	112	3,185	2,236	5,315	7,240 a/
Total	617,151	666,617	635,192	666,133	775,486	898,643	1,144,498	1,343,810
Small Grain								
Wheat	511,779	232,212	429,263	254,967	334,547	385,462	267,035	229,176
Oats	157,123	363,976	269,876	329,404	208,122	298,715	229,329	
Barley	1,909	3,436	50,808	23,830	3,572	2,330	7,456	131,196
Rye	1,923	12,569	17,946	4,804	3,833	1,708	4,516	
Mixed & Other Grains	269	374	573	7,231	6,347	3,108	2,706	
Total	673,003	612,567	768,466	620,236	556,421	691,323	511,042	360,372
Hay Crops Harvested	425,517	455,468	445,796	416,330	350,072	301,917	271,953	166,752
Fruit, Nuts, Berries	35,890 b/	24,840 b/	12,720 b/	13,769	5,985	5,111	1,677	1,320
Total Crops Harvested c/	1,751,561	1,759,492	1,862,174	1,716,468	1,687,964	1,896,994	1,929,170	1,872,254

[a]Source: Crop Reporting Service.
[b]Derived by converting number of trees and vines to acres.
[c]See section on Discrepancies, page 5.

TABLE 20.—Total Number of Farms and Number by Size Groups, Ohio Subarea 2, by Census Periods, 1900-1970.

	1900	1910	1920	1930	1940	1950	1960	1970
Total Number of Farms	32,188	31,323	30,191	27,038	26,351	23,979	19,125	17,508
Average Acres Per Farm	93.4	94.8	98.3	106.1	110.3	121.8	147.9	166.7
Number of Farms:								
Under 10 Acres	1,592	1,713	1,339	1,225	1,719	1,980	903	916
10 - 49 Acres	7,321	6,187	5,323	4,296	4,176	3,992	2,972	2,927
50 - 99 Acres	11,585	11,223	11,051	8,907	7,734	5,400	4,103	3,820
100 - 179 Acres	8,735	9,368	9,756	9,350	8,758	7,550	5,390	4,036
180 - 259 Acres	2,022	2,018	1,915	2,306	2,630	3,149	2,993	2,324
260 - 499 Acres	815	734	716	853	1,200	1,695	2,406	2,653
500 Acres or More	118	80	91	101	134	213	358	832

TABLE 21.—Acreage of Land Operated Under Different Tenure Systems, Ohio Subarea 2, by Census Periods, 1900-1970.

Census Period	Total Acreage in Farms		Full Owners		Part Owners		Tenant Operators		Manager Operated	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
1900 a/	3,005,422		N/A		N/A		N/A		N/A	
1910 a/	2,969,487		N/A		N/A		N/A		N/A	
1920	2,966,365	100	1,392,114	46.9	356,494	12.0	1,217,620	41.1	137	0.0
1930	2,868,190	100	1,197,622	41.8	550,978	19.2	1,085,100	37.8	34,490	1.2
1940	2,907,158	100	1,181,448	40.6	597,416	20.6	1,104,062	38.0	24,232	0.8
1950	2,921,335	100	1,098,747	37.6	816,300	28.0	987,827	33.8	18,461	0.6
1960	2,829,166	100	984,534	34.8	1,033,516	36.5	789,755	27.9	21,361	0.8
1970	2,918,094	100	1,063,896	36.5	1,360,884	46.6	493,614	16.9	N/A	

[a]Available for total state only in 1900 and 1910 census reports.

TABLE 22.—Number of Horses and Mules, Dairy Cows, Beef Cows, and Sheep on Farms, Ohio Subarea 2, by Census Periods, 1900-1970.

Census Period	Number of Animals				Number of Animal Units 3/			
					Including horses and mules		Excluding horses and mules	
	Horses and Mules (all ages) 1/	Dairy Cows	Beef Cows	Sheep (One year old & over)	Total 2/	Per 100 Acres in Farms	Total	Per 100 Acres in Farms
1900	120,943	93,471	10,786	373,511	287,808	9.6	178,959	6.0
1910	135,520	108,220	18,279	501,384	348,744	11.7	226,776	7.6
1920	119,760	102,004	24,549	286,667	291,670	9.8	183,886	6.2
1930	75,136	105,644	5,591	375,382	253,933	8.9	186,311	6.5
1940	60,863	135,928	7,372	367,823	271,642	9.3	216,865	7.5
1950	8,829	120,118	16,015	201,737	184,426	6.3	176,480	6.0
1960	4,639	88,576	25,047	196,425	157,083	5.6	152,908	5.4
1970	7,133	63,374	24,313	121,689 4/	118,445	4.1	112,025	3.8

[1]Horse and mule numbers are the total of all ages except in 1940, which only provided the number over 3 months of age. In 1900 and 1910, the numbers were provided by three age groups. Later census reports provided no breakdown by age groups. Consequently, to provide the most nearly comparable series, the total number of all ages was used except for 1940. To convert total horse and mule numbers to animal units, a conversion factor of 0.9 was used to adjust for the lower feed consumption of the young animals.

[2]In addition to the horses, mules, and dairy cows on farms in 1900, there were 194,737 horses and mules and 50,393 dairy cows in urban and non-farm areas of the state; in 1910, 194,881 horses and mules and 47,054 dairy cows; and in 1920, 95,206 horses and mules and 46,579 dairy cows. Since 1920, animals in urban and non-farm areas decreased rapidly and numbers were not obtained thereafter by the Bureau of the Census. Horses, mules, and dairy cows not on farms were not included in the above analysis.

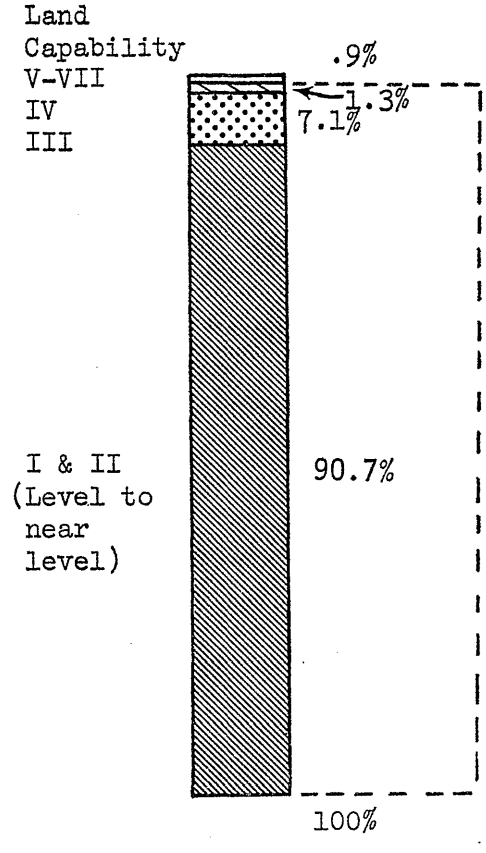
[3]Animal units (A.U.'s) were computed as follows: one horse or mule (all ages) = 0.9 A.U., one dairy cow = 1.0 A.U., one beef cow = 1.0 A.U., and five mature sheep = 1.0 A.U.

[4]The 1970 census only reported total sheep and lambs. Sheep numbers (1 year old and older) were estimated by assuming the same ratio of sheep 1 year old or over to lambs under 1 year as reported in the 1960 census.

TABLE 23.—Farm, Non-Farm, and Total Population, Ohio Subarea 2, by Census Periods, 1900-1970.

Census Period	Farm Population		Non-Farm Population		Total Population	
	Total	Per Sq. Mile	Total	Per Sq. Mile	Total	Per Sq. Mile
1900	NA	--	NA	--	358,012	72.7
1910	NA	--	NA	--	366,772	74.5
1920	NA	--	NA	--	383,920	78.0
1930	123,498	25.1	263,005	53.4	386,503	78.5
1940	120,291	24.4	272,981	55.5	393,272	79.9
1950	99,551	20.2	334,009	67.9	433,560	88.1
1960	78,507	15.9	422,835	85.9	501,342	101.9
1970	61,040	12.4	472,469	96.0	533,509	108.4

Land Capability, Subarea 2



0.9 % Suitable for permanent grazing and/or forest, generally not suitable for cultivation.

99.1 % Suitable for cropping with increasing degrees of erosion control practices and management problems in moving from I to IV.

100.0 % See appendix for land capability characteristics and use restrictions.

SUBAREA 3
CENTRAL WESTERN OHIO COUNTIES

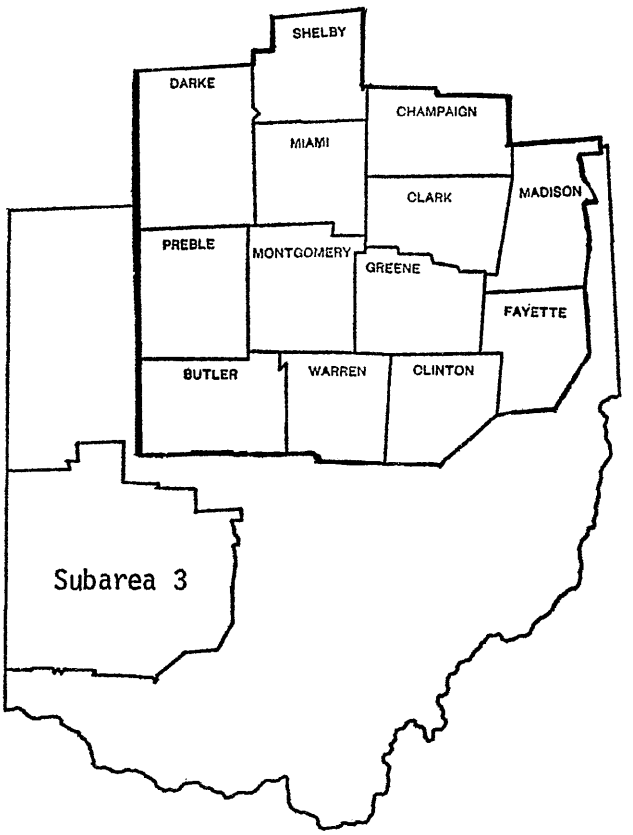
This subarea comprises 13 counties, all of which were covered by the Wisconsin glacier except for a small fringe on the southern edge which was previously overrun by the earlier Illinoian glacier. The soils are high lime glacial drift in origin, consisting of various associations of Miamian, Brookston, Crosby, and Celina soils.

A little less than 85 percent of the total land area was invoiced by CNIC as capability class I and II land, with about one-third of the capability II land having an erosion problem and two-thirds a drainage problem or both. All but 5 percent of the land in the area is considered suitable for crop production by the CNIC if proper erosion control and crop management practices are employed. Topographically, the terrain ranges from near level to undulating, with several glacial moraine belts and some mildly rolling land. It is favorably situated in respect to rainfall and growing season. Livestock in the area is diversified and includes substantial numbers of both concentrate and roughage consuming types. Somewhat more of the cropland historically has been used for rotation or cropland pasture and crops harvested for hay than in the two subareas to the north.

Subarea 3 is significantly influenced by the metropolitan complex extending along a line from Columbus on the east through Springfield, Dayton, Middletown, and Hamilton to Cincinnati to the southwest.

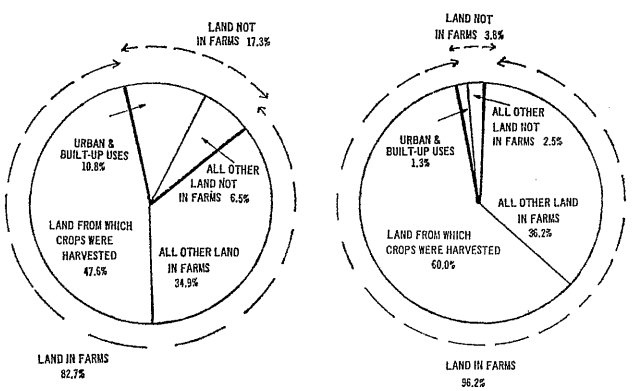
In This Area in 1970:

- 10.8 out of each 100 acres of land in the area were absorbed by Urban and Built-up Uses. An additional 6.5 acres were outside of farms and the remainder or 82.6 acres were in farms. Only subareas 1 and 2 to the north had higher percentages of the total land area in farms.



- 57.7 percent of the land in farms was in harvested crops. Only the two subareas to the north had larger percentages.
- Intertilled crops accounted for 71.5 acres out of each 100 acres of crops harvested, small grain 17.4 acres, and crops harvested for hay 11.0 acres. Fruit and berries accounted for about 0.1 acre.

Land Use in Subarea 3, 1970 (left) and 1900 (right).



Land Uses in Subarea 3

Categories of Use	1970 Acres	1970 Percent	1900 Acres	1900 Percent
Land in Farms				
In Crops Harvested	1,748,647	47.7	2,190,990	60.0
In All Other Uses	1,279,568	35.0	1,322,216	36.2
Total	3,028,215	82.7	3,513,206	96.2
Land Not in Farms				
Urban and Built-up Uses				
Urban and Built-up Areas	376,506		NA	
Federal Non-cropland	11,511		NA	
Water Areas	8,164		NA	
Total Urban and Built-up Uses	396,181	10.8	47,134	1.3
All Other Land Not in Farms	238,075	6.5	92,140	2.5
Total Land Not in Farms	634,256	17.3	139,274	3.8
Total Physical Area (Farm and Non-Farm)	3,662,471	100.0	3,652,480	100.0

• Corn with 774,600 acres in 1970, although the smallest harvest acreage reported for any of the census periods since 1900, was still the major crop in the area. Soybean acreage, while important, was only 60 percent that of corn.

• Approximately one farm out of every six contained 260 acres or more, and one out of 20 contained 500 acres or more. Half of the farms in the area contained less than 100 acres. The average for the area was 157.7 acres per farm.

• 36.0 percent of the land in farms was operated by farmers who both owned and rented land, 40.3 percent by full owner operators, and 23.7 percent by full tenant operators. The percent of land in farms operated by farmers who owned no land or full tenant operators was higher in subarea 3 than in any of the other subareas.

• The number of animal units of roughage and pasture-consuming livestock per 100 acres of land in farms was 5.2. This was slightly less than the average for the state.

• The total population per square mile was 265.8. Of these, 11.7 were recorded as farm and 254.1 as non-farm. Four of the 11 subareas were more densely populated.

Data on Land Use and Selected Factors Show:

• A decrease of approximately one-half million acres of land in farms and a drop of more than 400,000 acres in crops harvested.

• An increase from less than 50,000 to almost 400,000 in the acreage absorbed by Urban and Built-up Uses.

• An increase in non-farm population from 106.7 per square mile to 254.1 and a decrease in farm population from 26.6 to 11.7 between 1930 and 1970.

• A substantial increase in the acreage and importance of intertilled crops in the cropping system and a similar decrease in small grains. Crops harvested for hay remained relatively unchanged until 1960 and then dropped by more than one-third in the next decade.

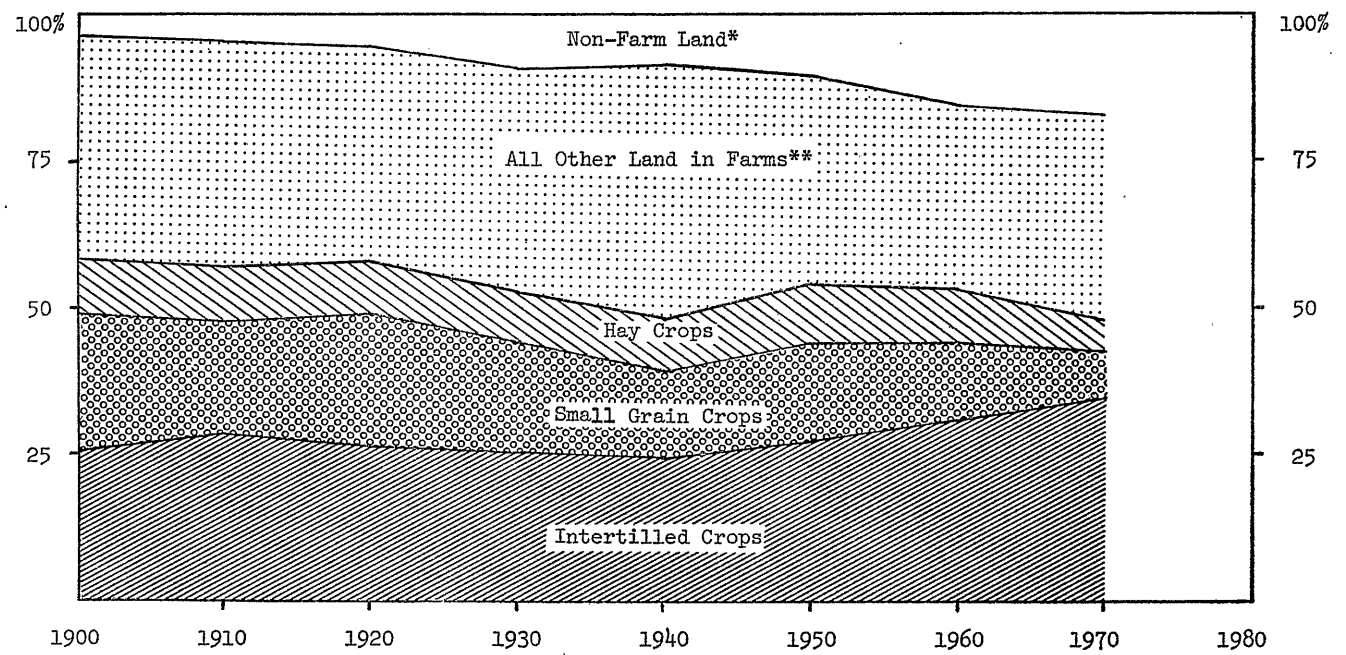
• Tobacco, potatoes, vegetables for sale, and fruit and berries, all important crops during the period 1900-1910 (especially tobacco), have largely disappeared from the area.

• 18,717 or almost half of the farm operating units recorded in 1900 have passed out of existence, with most of the drop having occurred since 1940. Farm operating units with less than 100 acres accounted for 14,611 or 78 percent of the reduction.

• Farms with 260 acres or more of land per operating unit increased from 1,301 to 3,339 or 161 percent between 1940 and 1970. This was achieved by expansion oriented farmers renting or purchasing land which became available as the operators of small farms discontinued farming.

• A near stable percent of the land in farms operated by full owners but a marked decline in percent

Land Use in Subarea 3 by Census Periods, 1900-1970.



*Includes Urban and Built-up Uses, scattered non-farm rural residences, brush, forest, and wasteland outside farms.
**Includes cropland which is idle, fallow, and failed; cropland used only for pasture; non-cropland, non-woodland pasture; woodland; and land occupied by farmsteads, farm roads, ponds, and wasteland.

operated by full tenant operators and a rapid increase in the percent operated by part owner operators or those who both own and rent.

- Animal units of roughage and pasture-consuming livestock exclusive of horses and mules per 100 acres of land in farms have remained fairly stable, but a composition change occurred from predominantly dairy cows to one in which beef cows slightly outnumbered dairy cows.

Some General Observations

This subarea will continue to be one of the state's major farming areas during the remainder of this century. This will be true even though the farm sector has been experiencing increasing competition from the non-farm segments of the economy. Competition for the land will continue to be acute in view of its high potential for agricultural uses as a result of the productivity of its soils and at the same time its very favorable location in respect to transportation facilities, especially interstate highways, and to major markets attractive for many non-farm uses. Already the agriculture in the area is experiencing many of the frictions as well as the advantages of a nearby expanding non-farm economy. Not the least of the developing frictions are the shifting of numerous controls over local activities from the farm to the non-farm sector, and the increased restrictions on land use and similar regulations generated in the latter sector. The competitive strength of the farm sector will be affected by the domestic and world demand for its products. If the demand for farm commodities remains strong, the invasion of the non-farm sector into the good land area will be slowed but not stopped.

The number of farms will continue to decline and the acreage of land operated by those remaining will increase. This will be particularly true in the area west of the Little Miami River where the original settlement pattern was predominantly farms of 40 to 80 acres. In contrast, the eastern portion of subarea 3 or that situated in the Virginia Military Land sector where the original settlements were in much larger ownership units, farm size, while continuing to increase, will be at a slower rate since the size pattern is already much larger.

In the western counties, tobacco production and in the Virginia Military sector traditions brought in by the early settlers from Old Virginia contributed to the large amount of land operated by tenants. With the gradual decline in importance of tobacco production and the increase in farm mechanization, the acreage of land operated by farmers who rented all of the land they farmed has declined rapidly and will continue to do so. At the same time, some reduction will occur in the percent of the total farmland operated by full owner operators as they find it economically advantageous to expand the size of their operations. When this occurs, a significant amount of the expansion will be done by renting rather than purchasing the land released as other farmers elect to move out of farming.

TABLE 24.—Total Land Area and Acreage by Different Use Categories, Ohio Subarea 3, by Census Periods, 1900-1970.

Census Period	Total Land Area	Total Land Outside Farms	Land in Farms						
			Total in Farms	Cropland				Woodland Pastured & Not Pastured	All Other Land in Farms[2]
				Cropland Total[1]	Harvested	Idle, Fallow and Failed	Pastured Only[1]		
1900	3,652,480	139,274	3,513,206	NA	2,190,990	NA	NA	NA	NA
1910	3,652,480	169,583	3,482,897	NA	2,124,375	NA	NA	327,580	NA
1920	3,652,480	198,551	3,453,929	NA	2,161,155	NA	NA	302,200	NA
1930	3,652,480	331,528	3,320,952	2,500,437	1,957,855	144,340	398,242	266,307	NA
1940	3,664,640	301,099	3,363,541	2,383,009	1,776,001	140,491	466,617	227,002	NA
1950	3,664,640	389,638	3,275,002	2,484,355	1,991,628	93,933	398,794	281,555[3]	509,092
1960	3,664,640	584,492	3,080,148	2,382,571	1,960,878	120,953	300,740	234,315	463,262
1970	3,662,471	634,256	3,028,215	2,458,252	1,748,647	421,777	287,828	229,067	340,896

[1]Total Cropland and Cropland Used Only for Pasture were not reported in censuses prior to 1950. In 1930 and 1940, the census reported an acreage of Plowable Pasture, defined as the land used only for pasture which could have been used for crops without clearing and draining. As interpreted by most farmers, this included their open (brush and tree-free) permanent pasture, as well as their cropland used only for pasture. Consequently, it could not be added to the acreage of crops harvested and the idle, fallow, and failed acres to obtain a Total Cropland acreage. In 1950, the Bureau of the Census shifted from the classification of Plowable Pasture to Cropland Used Only for Pasture, and obtained an acreage figure which, although it probably still contained some permanent pasture land, was considered a sufficiently reliable reflection of cropland to permit the reporting of a Total Cropland acreage.

[2]Non-crop, non-woodland pasture and land in house and barn lots, lanes, roads, ditches, ponds, and wasteland.

[3]No definition was given farm operators or census enumerators in 1950, which may explain this improbable increase.

Livestock in the area will continue to consist of both roughage and pasture-consuming and concentrate-consuming types. The latter will adjust to the extent of the market demand for animal products, whereas the former will adjust to the extent to which farmers will consider it necessary for soil conservation and also profitable to allocate a part of their cropland to hay crops and cropland used only for pasture, both of which represented fairly sizeable acreages in 1970.

Farm population in the area will continue to decline for some years but at a slower rate than previously. At the same time, non-farm population will continue to increase at a fairly rapid rate during the remainder of this century.

TABLE 25.—Acreage of Principal Crops Harvested by Types of Crops, Ohio Subarea 3, by Census Periods, 1900-1970.

	1900	1910	1920	1930	1940	1950	1960	1970
Row or Intertilled Crops								
Corn, All Purposes	859,499	958,560	905,663	860,664	778,834	851,375	899,347	774,600
Soybeans	NA	NA	NA	11,855	73,512	120,614	205,970	469,460
Potatoes, Irish & Sweet	17,438	20,920	12,898	9,354	6,157	3,313	2,225	1,320
Vegetables for Sale	14,362	18,254	10,520	15,346	11,556	8,235	5,910	4,044
Tabacco	52,081	71,197	46,292	27,771	15,464	6,588	3,704	1,661
Sugarbeets	NA	NA	74	37	1,012	NA	NA	a/
Popcorn	512	NA	NA	107	919	2,020	1,888	2,560
Total	943,892	1,068,931	975,447	925,134	887,454	992,145	1,119,044	1,253,645
Small Grain								
Wheat	752,811	372,526	596,159	338,974	435,342	496,639	284,081	214,586
Oats	96,848	307,813	199,002	329,562	84,703	158,417	194,233	
Barley	2,123	1,683	6,588	15,271	8,854	4,716	12,131	89,545
Rye	2,232	11,460	27,806	15,090	7,259	2,007	4,393	
Mixed & Other Grains	161	240	536	6,115	12,246	3,623	856	
Total	854,175	693,722	830,091	705,012	548,404	665,402	495,694	304,131
Hay Crops Harvested	347,411	334,402	344,357	308,886	308,243	320,327	300,718	192,385
Fruit, Nuts, Berries	39,460	27,320	11,260	12,191	7,131	5,417	3,296	1,973
Total Crops Harvested c/	2,184,938	2,124,375	2,161,155	1,951,223	1,751,262	1,983,291	1,918,752	1,752,134

[a]Source: Crop Reporting Service.
[b]Derived by converting number of trees and vines to acres.
[c]See section on Discrepancies, page 5.

TABLE 26.—Total Number of Farms and Number by Size Groups, Ohio Subarea 3, by Census Periods, 1900-1970.

	1900	1910	1920	1930	1940	1950	1960	1970
Total Number of Farms	37,916	38,979	37,321	33,041	33,572	29,599	22,020	19,199
Average Acres Per Farm	92.7	89.4	92.5	100.5	100.2	110.6	139.9	157.7
Number of Farms:								
Under 10 Acres	3,148	3,696	2,881	2,147	3,370	3,213	1,272	1,229
10 - 49 Acres	9,282	9,593	8,680	6,893	7,284	6,462	4,648	4,052
50 - 99 Acres	11,626	11,924	12,122	10,536	9,561	6,911	4,753	4,164
100 - 179 Acres	10,131	10,054	10,020	9,509	8,926	7,771	5,483	4,240
180 - 259 Acres	2,428	2,448	2,372	2,438	2,687	3,031	2,844	2,115
260 - 499 Acres	1,095	1,081	1,075	1,307	1,476	1,859	2,476	2,486
500 Acres or More	206	183	171	211	268	352	544	913

TABLE 27.—Acreage of Land Operated Under Different Tenure Systems, Ohio Subarea 3, by Census Periods, 1900-1970.

Census Period	Total Acreage in Farms		Full Owners		Part Owners		Tenant Operators		Manager Operated	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
1900 a/	3,513,206		N/A		N/A		N/A		N/A	
1910 a/	3,482,897		N/A		N/A		N/A		N/A	
1920	3,453,929		1,366,888	39.5	271,172	7.9	1,717,076	49.7	98,793	2.9
1930	3,320,952	100	1,274,278	38.4	403,300	12.1	1,582,778	47.7	60,596	1.8
1940	3,363,541	100	1,398,942	41.6	405,884	12.0	1,469,522	43.7	89,193	2.7
1950	3,275,002	100	1,303,848	39.8	652,594	19.9	1,249,495	38.2	69,065	2.1
1960	3,080,148	100	1,079,772	35.0	869,006	28.2	1,058,417	34.4	72,953	2.4
1970	3,028,215	100	1,220,293	40.3	1,089,307	36.0	718,615	23.7	N/A	

[a]Available for total state only in 1900 and 1910 census reports.

TABLE 28.—Number of Horses and Mules, Dairy Cows, Beef Cows, and Sheep on Farms, Ohio Subarea 3, by Census Periods, 1900-1970.

Census Period	Number of Animals				Number of Animal Units 3/			
					Including horses and mules		Excluding horses and mules	
	Horses and Mules (all ages) 1/	Dairy Cows	Beef Cows	Sheep (One year old & over)	Total 2/	Per 100 Acres in Farms	Total	Per 100 Acres in Farms
1900	150,902	109,273	11,690	166,646	290,104	8.3	154,292	4.4
1910	169,176	125,583	20,864	183,639	335,433	9.6	183,175	5.3
1920	155,830	131,033	24,193	125,475	320,568	9.3	180,321	5.2
1930	96,647	133,938	7,783	186,637	266,030	8.0	179,048	5.4
1940	73,207	157,748	14,336	241,202	286,210	8.5	220,324	6.6
1950	16,450	136,446	34,276	133,449	212,217	6.5	197,412	6.0
1960	9,326	97,041	63,186	126,206	193,861	6.3	185,468	6.0
1970	12,174	64,845	65,697	75,156 4/	156,530	5.2	145,573	4.8

[1]Horse and mule numbers are the total of all ages except in 1940, which only provided the number over 3 months of age. In 1900 and 1910, the numbers were provided by three age groups. Later census reports provided no breakdown by age groups. Consequently, to provide the most nearly comparable series, the total number of all ages was used except for 1940. To convert total horse and mule numbers to animal units, a conversion factor of 0.9 was used to adjust for the lower feed consumption of the young animals.

[2]In addition to the horses, mules, and dairy cows on farms in 1900, there were 194,737 horses and mules and 50,393 dairy cows in urban and non-farm areas of the state; in 1910, 194,881 horses and mules and 47,054 dairy cows; and in 1920, 95,206 horses and mules and 46,579 dairy cows. Since 1920, animals in urban and non-farm areas decreased rapidly and numbers were not obtained thereafter by the Bureau of the Census. Horses, mules, and dairy cows not on farms were not included in the above analysis.

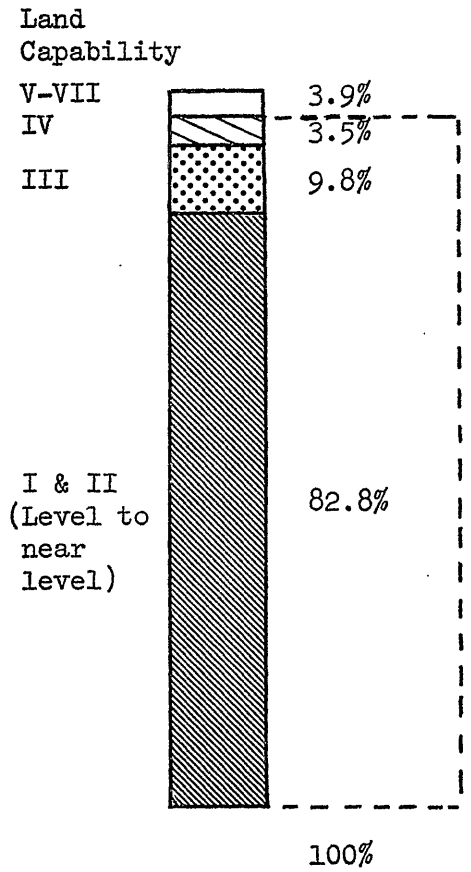
[3]Animal units (A.U.'s) were computed as follows: one horse or mule (all ages) = 0.9 A.U., one dairy cow = 1.0 A.U., one beef cow = 1.0 A.U., and five mature sheep = 1.0 A.U.

[4]The 1970 census only reported total sheep and lambs. Sheep numbers (1 year old and older) were estimated by assuming the same ratio of sheep 1 year old or over to lambs under 1 year as reported in the 1960 census.

TABLE 29.—Farm, Non-Farm, and Total Population, Ohio Subarea 3, by Census Periods, 1900-1970.

Census Period	Farm Population		Non-Farm Population		Total Population	
	Total	Per Sq. Mile	Total	Per Sq. Mile	Total	Per Sq. Mile
1900	NA	--	NA	--	530,286	92.7
1910	NA	--	NA	--	582,853	101.9
1920	NA	--	NA	--	664,009	116.0
1930	152,024	26.6	610,431	106.7	762,455	133.2
1940	159,362	27.8	649,662	113.5	809,024	141.4
1950	125,705	22.0	884,893	154.6	1,010,598	176.6
1960	88,698	15.5	1,224,803	214.0	1,313,501	229.5
1970	66,889	11.7	1,454,247	254.1	1,521,136	265.8

Land Capability, Subarea 3



3.9 % Suitable for permanent grazing and/or forest, generally not suitable for cultivation.

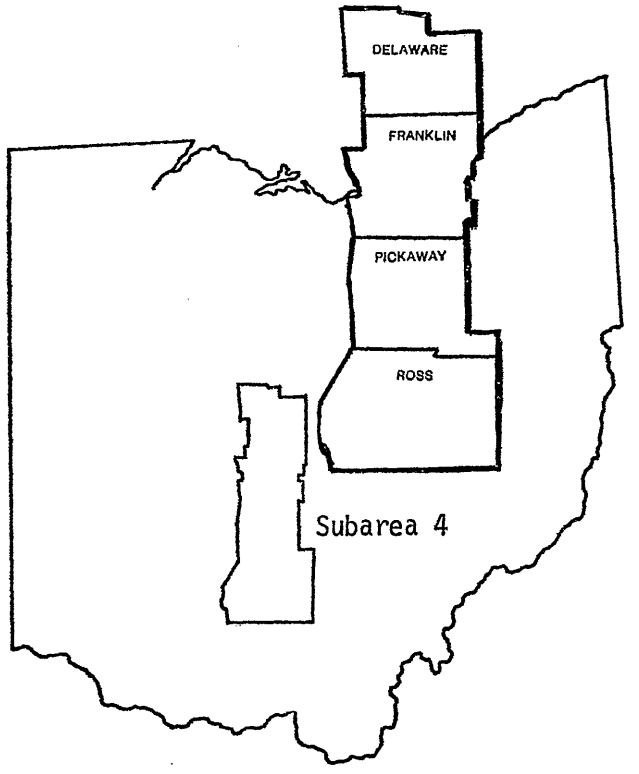
96.1 % Suitable for cropping with increasing degrees of erosion control practices and management problems in moving from I to IV.

100.0 % See appendix for land capability characteristics and use restrictions.

SUBAREA 4
CENTRAL OHIO TRANSITIONAL WESTERN SECTOR

This subarea is comprised of the four western counties of an eight-county transitional group in central Ohio. They are centered over the north-south dividing line between the geological limestone outcroppings to the west and sandstone and shales to the east. These eight central Ohio counties, except for an eastern and southern fringe, were glaciated during the Illinoian and Wisconsin Ice Ages, as were the counties to the west and north. However, because of the direction of the ice flow and some differences in the nature of the parent material out of which the soils were derived, many different soil types and associations as well as significant differences in topography exist. Consequently, none of the eight transitional counties fit well into adjacent subareas. Furthermore, variations within the eight-county transitional group are sufficient to necessitate dividing it into a western and an eastern sector, with the former designated as subarea 4 and the latter as subarea 5.

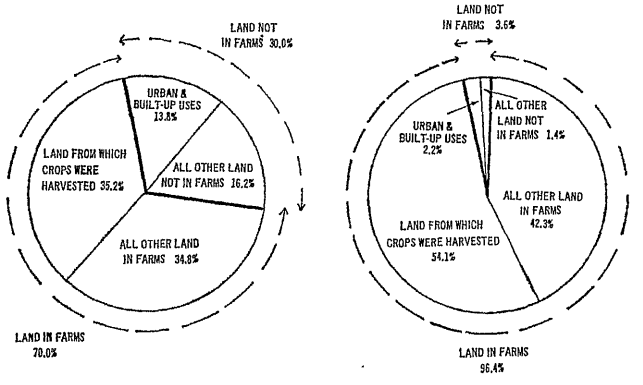
CNIC's inventory of the land resources in the four western counties comprising subarea 4 classified 74.7 percent of the land as capability classes I and II, 12.5 percent as III and IV, and 12.8 percent as classes V, VI, and VII, with the latter three not generally considered suitable for cropping. The topography of the area ranges from predominantly level or near level on the west to rolling and hilly, particularly in the south and eastern parts of Pickaway and Ross counties. Soil-wise, although part of the area is underlain with sandstone and shale, it tends to be fairly high in lime due to the carryover from the limestone area. The Columbus metropolitan area also is a major factor in the land use.



In This Area in 1970:

- 70 out of every 100 acres of land were in farms. Approximately 14 out of every 100 acres were absorbed by Urban and Built-up Uses and 16 additional acres were outside of farms.
- 50.2 percent of the land in farms was in harvested crops, very close to the average for the state.
- Intertilled crops accounted for 68.7 acres of each 100 acres of crops harvested, small grains 19.1 acres, and crops harvested for hay 12.0 acres. Fruit and berries accounted for about 0.2 acre.

Land Use in Subarea 4, 1970 (left) and 1900 (right).



Land Uses in Subarea 4

Categories of Use	1970 Acres	1970 Percent	1900 Acres	1900 Percent
Land in Farms				
In Crops Harvested	488,406	35.2	733,895	54.1
In All Other Uses	483,755	34.8	573,394	42.3
Total	972,161	70.0	1,307,289	96.4
Land Not in Farms				
Urban and Built-up Uses				
Urban and Built-up Areas	179,762		NA	
Federal Non-Cropland	9,403		NA	
Water Areas	2,345		NA	
Total Urban and Built-up Uses	191,510	13.8	29,731	2.2
All Other Land Not in Farms	225,664	16.2	19,780	1.4
Total Land Not in Farms	417,174	30.0	49,511	3.6
Total Physical Area (Farm and Non-farm)	1,389,335	100.0	1,356,800	100.0

- Corn was the most important crop, with 196,005 acres or 40.2 percent of the total crops harvested acreage, followed by soybeans with 136,851 acres or 28.0 percent.
- The average acreage of land per farm was 204, the highest of the 11 subareas. One farm out of every four contained 260 acres or more and one out of 11 contained 500 or more acres.
- 37.8 percent of the land in farms was operated by farmers who both own and rent land, 38.9 percent by full owner operators, and 23.3 percent by full tenant operators.
- The number of animal units of roughage and pasture-consuming livestock exclusive of horses and mules was 4.8 per 100 acres of land in farms. Beef cow numbers were more than double that of dairy cows.
- The total number of farm and non-farm people per square mile was 450.3, of which only 6.6 were recorded as farm.

Data on Land Use and Selected Factors Show:

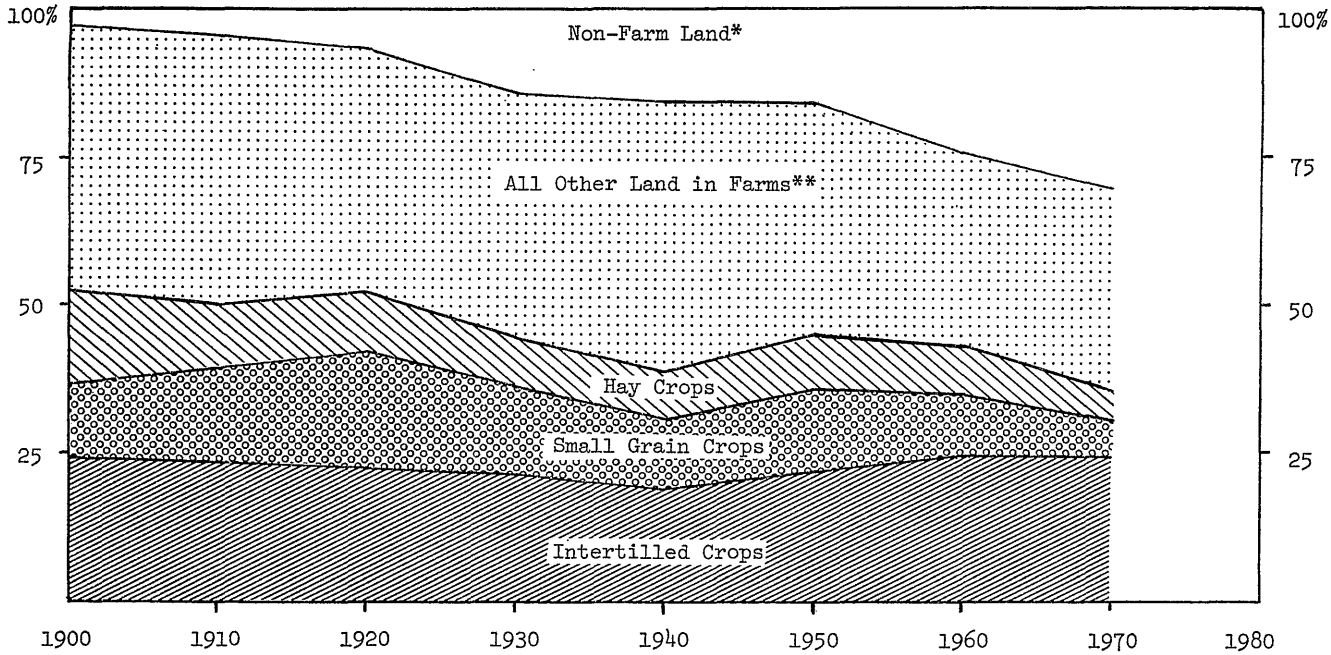
- A decrease in land in farms of 335,128 acres or 25.6 percent and an increase in the land absorbed by Urban and Built-up Uses of 161,779 acres or 544 percent during the 70 years.
- A one-third decrease in the acreage of crops harvested since 1900.
- A slightly higher acreage in intertilled crops in both 1960 and 1970 than in 1900, in spite of the sharp drops in the acreage of land in farms and in crops harvested.
- Although the total crops harvested declined by one-third, crops harvested for hay declined very little until the decade of the 1960's. Between 1960 and 1970, the acreage of hay crops declined from 111,109 to 58,501.
- Vegetables and fruit produced for sale, both important in 1900, utilized very small acreages in 1970. The decline in the importance of the latter was continuous from 1900, while the former remained an important crop in terms of acres through 1930.
- The number of farms remained fairly stable through 1940 but declined rapidly thereafter, with most of the decline taking place in the number of farms with less than 100 acres of land. During the period analyzed there was an approximate doubling of the size of farms in terms of land.
- A rapid decrease from 1920 in the percent of land in farms operated by farmers who owned no land or full tenants and a somewhat more rapid increase in percent of land operated by farmers who both own and rent. The percent operated by full owner operators remained fairly steady over the 70-year period.
- Animal units of roughage and pasture-consuming livestock including horses and mules per 100 acres of land in farms dropped from a peak of 9.4 in 1910 to 5.1 in 1970. Exclusive of horses and mules, animal units of dairy, beef, and sheep per 100 acres remained fairly stable over the period.
- Total population increased steadily over the 70-year period from 119 to 450 per square mile, and farm population declined from 26.6 per square mile in 1940 to 6.6 in 1970.

Some General Observations

Urban and Built-up Uses will continue to expand during the remainder of the century as a result of growth of the Columbus metropolitan area. However, part of the expansion will be met out of the 225,664 acres of other non-farm land (Table 30) and part by continued absorption of land in farms. In view of the high quality of the land for agriculture presently in farms in the area, the rate at which it shifts from farm to non-farm uses will depend upon the demand for farm commodities and the limitations imposed by scarce resources.

In respect to other trends analyzed, it appears reasonable to expect a continued increase in the acreage of land per farm, with much of the increase being realized by full owner operators adding additional acreage through renting, thus increasing the proportion of land operated by part owners, part renters. The characteristics of the cropping and livestock systems are unlikely to change significantly unless the cost of transportation as a result of the energy situation increases the economic advantage of nearby production of bulky and perishable products such as milk, vegetables, and fruit over cash grains.

Land Use in Subarea 4 by Census Periods, 1900-1970.



*Includes Urban and Built-up Uses, scattered non-farm rural residences, brush, forest, and wasteland outside farms.
**Includes cropland which is idle, fallow, and failed; cropland used only for pasture; non-cropland, non-woodland pasture; woodland; and land occupied by farmsteads, farm roads, ponds, and wasteland.

TABLE 30.—Total Land Area and Acreage by Different Use Categories, Ohio Subarea 4, by Census Periods, 1900-1970.

Census Period	Total Land Area	Total Land Outside Farms	Land in Farms						
			Total in Farms	Cropland				Woodland Pastured & Not Pastured	All Other Land in Farms[2]
				Cropland Total[1]	Harvested	Idle, Fallow and Failed	Pastured Only[1]		
1900	1,356,800	49,511	1,307,289	NA	733,895	NA	NA	NA	NA
1910	1,356,800	59,364	1,297,436	NA	694,002	NA	NA	152,987	NA
1920	1,356,800	91,508	1,265,292	NA	715,396	NA	NA	156,443	NA
1930	1,356,800	189,996	1,166,804	774,215	603,475	44,824	125,915	124,003	NA
1940	1,402,240	219,052	1,183,188	746,882	541,148	67,052	138,682	109,471	NA
1950	1,402,240	223,646	1,178,594	831,099	627,277	42,506	161,316	146,696[3]	200,799
1960	1,402,240	337,141	1,065,099	773,588	607,153	47,760	118,675	116,623	174,888
1970	1,389,335	417,174	972,161	751,418	488,406	155,995	107,017	94,477	126,266

[1]Total Cropland and Cropland Used Only for Pasture were not reported in censuses prior to 1950. In 1930 and 1940, the census reported an acreage of Plowable Pasture, defined as the land used only for pasture which could have been used for crops without clearing and draining. As interpreted by most farmers, this included their open (brush and tree-free) permanent pasture, as well as their cropland used only for pasture. Consequently, it could not be added to the acreage of crops harvested and the idle, fallow, and failed acres to obtain a Total Cropland acreage. In 1950, the Bureau of the Census shifted from the classification of Plowable Pasture to Cropland Used Only for Pasture, and obtained an acreage figure which, although it probably still contained some permanent pasture land, was considered a sufficiently reliable reflection of cropland to permit the reporting of a Total Cropland acreage.
[2]Non-crop, non-woodland pasture and land in house and barn lots, lanes, roads, ditches, ponds, and wasteland.
[3]No definition was given farm operators or census enumerators in 1950, which may explain this improbable increase.

TABLE 31.—Acreage of Principal Crops Harvested by Types of Crops, Ohio Subarea 4, by Census Periods, 1900-1970.

	1900	1910	1920	1930	1940	1950	1960	1970
Row or Intertilled Crops								
Corn, All Purposes	308,045	305,729	291,849	266,001	221,264	246,656	259,471	196,005
Soybeans	NA	NA	NA	6,004	32,385	50,418	81,602	136,851
Potatoes, Irish & Sweet	5,215	7,730	5,351	3,387	1,520	499	348	131
Vegetables for Sale	11,195	11,210	8,399	11,648	6,994	6,618	4,858	1,949
Tobacco	NA	37	39	119	77	48	28	22
Sugarbeets	NA	NA	NA	NA	NA	NA	NA	NA a/
Popcorn	92	NA	NA	46	154	244	272	360
Total	324,547	324,706	305,638	287,205	262,394	304,483	346,579	335,318
Small Grain								
Wheat	230,936	169,341	240,857	143,460	146,075	164,029	90,317	71,879
Oats	24,585	31,170	24,995	45,965	11,923	34,567	43,932	
Barley	53	43	825	2,421	793	780	4,767	21,454
Rye	770	5,352	4,226	2,970	1,780	634	2,003	
Mixed & Other Grains	165	304	652	1,646	2,045	1,340	194	
Total	256,509	206,210	271,555	196,462	162,616	201,350	141,213	93,333
Hay Crops Harvested	131,828	150,666	131,083	112,388	104,449	114,644	111,109	58,501
Fruit, Nuts, Berries	17,940 b/	12,420 b/	7,120 b/	7,718	5,359	3,958	1,422	922
Total Crops Harvested c/	730,824	694,002	715,396	603,773	534,818	624,435	600,323	488,074

[a]Source: Crop Reporting Service.
[b]Derived by converting number of trees and vines to acres.
[c]See section on Discrepancies, page 5.

TABLE 32.—Total Number of Farms and Number by Size Groups, Ohio Subarea 4, by Census Periods, 1900-1970.

	1900	1910	1920	1930	1940	1950	1960	1970
Total Number of Farms	12,549	12,439	11,800	10,204	10,927	9,124	6,095	4,765
Average Acres Per Farm	104.2	104.3	107.2	114.3	108.3	129.2	174.7	204.0
Number of Farms:								
Under 10 Acres	908	1,009	879	811	1,384	1,003	321	219
10 - 49 Acres	3,107	2,964	2,569	2,031	2,491	2,005	1,163	836
50 - 99 Acres	3,408	3,393	3,222	2,582	2,506	1,796	1,125	887
100 - 179 Acres	3,288	3,142	3,315	2,934	2,610	2,111	1,348	1,080
180 - 259 Acres	1,031	1,134	1,028	1,047	1,031	1,075	868	553
260 - 499 Acres	672	677	659	669	740	906	930	765
500 Acres or More	135	120	128	130	165	228	340	425

TABLE 33.—Acreage of Land Operated Under Different Tenure Systems, Ohio Subarea 4, by Census Periods, 1900-1970.

Census Period	Total Acreage in Farms		Full Owners		Part Owners		Tenant Operators		Manager Operated	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
1900 a/	1,307,289		N/A		N/A		N/A		N/A	
1910 a/	1,297,436		N/A		N/A		N/A		N/A	
1920	1,265,292	100	556,245	44.0	129,008	10.2	537,198	42.4	42,841	3.4
1930	1,166,804	100	475,756	40.8	168,007	14.4	488,871	41.9	34,170	2.9
1940	1,183,188	100	541,966	45.8	158,248	13.4	450,372	38.1	32,602	2.7
1950	1,178,594	100	492,050	41.8	274,663	23.3	371,731	31.5	40,150	3.4
1960	1,065,099	100	372,386	34.9	334,034	31.4	320,605	30.1	38,074	3.6
1970	972,161	100	378,409	38.9	367,451	37.8	226,301	23.3	N/A	

[a]Available for total state only in 1900 and 1910 census reports.

TABLE 34.—Number of Horses and Mules, Dairy Cows, Beef Cows, and Sheep on Farms, Ohio Subarea 4, by Census Periods, 1900-1970.

Census Period	Number of Animals				Number of Animal Units 3/			
					Including horses and mules		Excluding horses and mules	
	Horses and Mules (all ages) 1/	Dairy Cows	Beef Cows	Sheep (One year old & over)	Total 2/	Per 100 Acres in Farms	Total	Per 100 Acres in Farms
1900	51,854	36,475	4,265	78,005	103,010	7.9	56,341	4.3
1910	56,077	44,649	7,499	96,469	121,911	9.4	71,442	5.5
1920	49,887	42,264	8,079	61,093	107,460	8.5	62,562	4.9
1930	29,748	39,661	3,279	71,853	84,084	7.2	57,311	4.9
1940	23,529	48,145	4,961	87,617	91,805	7.8	70,629	6.0
1950	7,596	39,601	15,986	42,775	70,978	6.0	64,142	5.4
1960	3,586	25,246	27,726	42,063	64,612	6.1	61,385	5.8
1970	3,372	12,757	25,893	25,510 4/	49,787	5.1	46,752	4.8

[1]Horse and mule numbers are the total of all ages except in 1940, which only provided the number over 3 months of age. In 1900 and 1910, the numbers were provided by three age groups. Later census reports provided no breakdown by age groups. Consequently, to provide the most nearly comparable series, the total number of all ages was used except for 1940. To convert total horse and mule numbers to animal units, a conversion factor of 0.9 was used to adjust for the lower feed consumption of the young animals.

[2]In addition to the horses, mules, and dairy cows on farms in 1900, there were 194,737 horses and mules and 50,393 dairy cows in urban and non-farm areas of the state; in 1910, 194,881 horses and mules and 47,054 dairy cows; and in 1920, 95,206 horses and mules and 46,579 dairy cows. Since 1920, animals in urban and non-farm areas decreased rapidly and numbers were not obtained thereafter by the Bureau of the Census. Horses, mules, and dairy cows not on farms were not included in the above analysis.

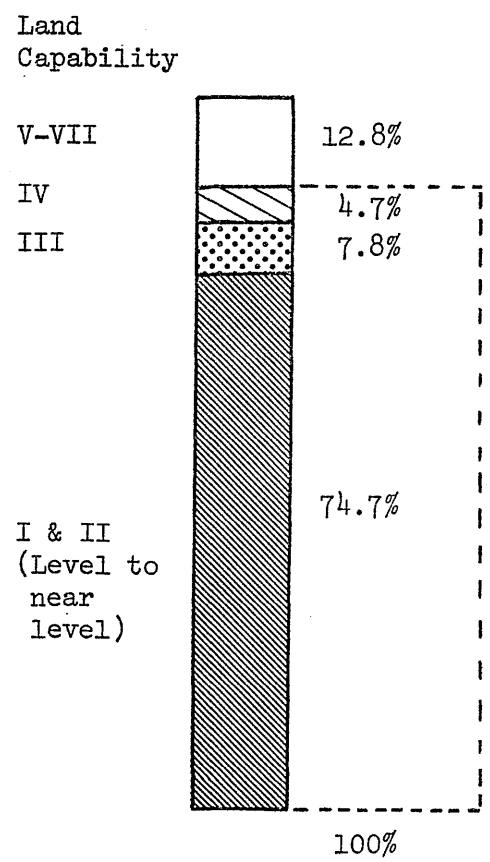
[3]Animal units (A.U.'s) were computed as follows: one horse or mule (all ages) = 0.9 A.U., one dairy cow = 1.0 A.U., one beef cow = 1.0 A.U., and five mature sheep = 1.0 A.U.

[4]The 1970 census only reported total sheep and lambs. Sheep numbers (1 year old and older) were estimated by assuming the same ratio of sheep 1 year old or over to lambs under 1 year as reported in the 1960 census.

TABLE 35.—Farm, Non-Farm, and Total Population, Ohio Subarea 4, by Census Periods, 1900-1970.

Census Period	Farm Population		Non-Farm Population		Total Population	
	Total	Per Sq. Mile	Total	Per Sq. Mile	Total	Per Sq. Mile
1900	NA	--	NA	--	258,817	119.2
1910	NA	--	NA	--	314,976	145.1
1920	NA	--	NA	--	377,308	173.8
1930	52,573	24.2	406,917	187.5	459,490	211.7
1940	57,671	26.6	437,857	201.7	495,528	228.3
1950	40,950	18.9	576,514	265.6	617,464	284.4
1960	23,573	10.9	792,527	365.1	816,100	375.9
1970	14,296	6.6	963,143	443.7	977,439	450.3

Land Capability, Subarea 4



12.8% Suitable for permanent grazing and/or forest, generally not suitable for cultivation.

87.2% Suitable for cropping with increasing degrees of erosion control practices and management problems in moving from I to IV.

100.0% See appendix for land capability characteristics and use restrictions.

SUBAREA 5
CENTRAL OHIO TRANSITIONAL EASTERN SECTOR

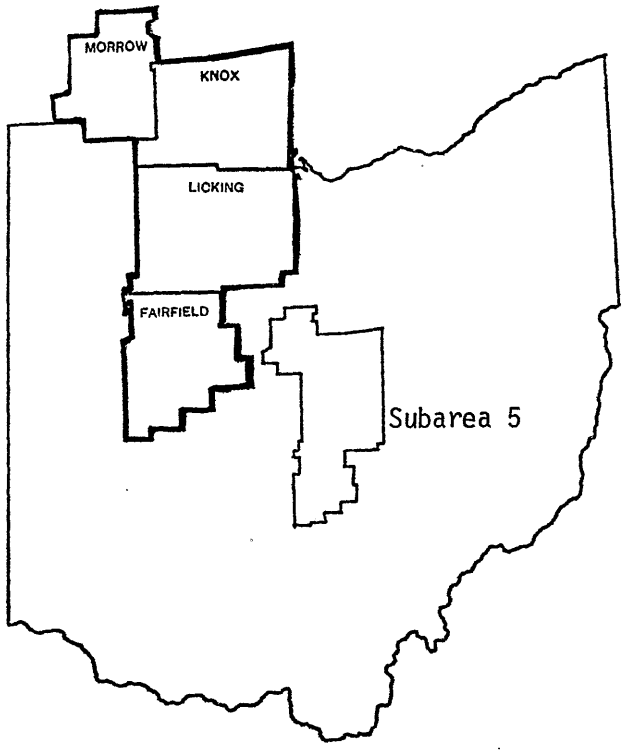
This subarea is comprised of the four eastern counties of an eight-county transitional group in central Ohio. They are centered over the north-south dividing line between the geological limestone outcroppings to the west and sandstone and shales to the east. These eight central Ohio counties, except for an eastern and southern fringe, were glaciated during the Illinoian and Wisconsin Ice Ages, as were the counties to the west and north. However, because of the direction of the ice flow and the differences in the nature of the parent material out of which the soils were derived, many different soil types and associations as well as significant differences in topography exist. Consequently, none of the eight transitional counties fit well into adjacent subareas. Furthermore, variations within the eight-county transitional group are sufficient to necessitate dividing it into a western and an eastern sector, with the latter designated as subarea 5 and the former as subarea 4. The soils in subarea 5 are predominantly of the Alexandria-Cardington-Bennington-Marengo and the Hanover-Muskingum associations.

CNIC's inventory of the land resources in the four eastern counties comprising subarea 5 classified 61.3 percent of the land as capabilities I and II, 32.6 percent as capabilities III and IV, and 6.1 as capabilities V, VI, and VII, with the latter three not generally considered suitable for cropping. Topographically, subarea 5 ranges from predominantly level or near level or undulating in the western and northwestern parts to rolling and hilly, with small areas of rough and broken land on the southern fringe. Erosion and poor drainage are problems.

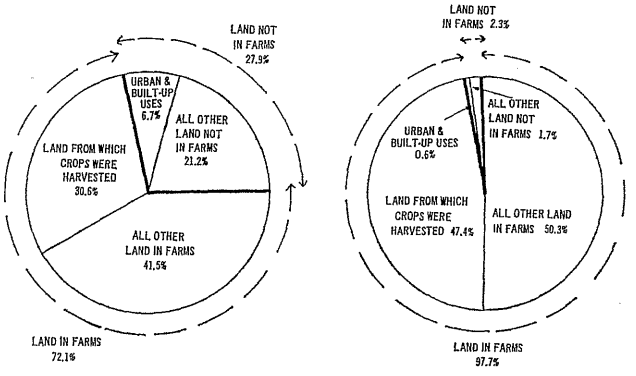
An urban and industrial impact on land use is present in the area as a result of some overlap of the Columbus metropolitan area on the west and three sizeable county seat towns with growing industrial communities.

In This Area in 1970:

- 72.1 percent of the land was in farms, 6.7 was in Urban and Built-up Uses, and 21.2 was in other non-farm uses.
- 42.4 percent of the total land in farms was in harvested crops.
- Intertilled crops comprised 56.5 percent of the crops harvested, small grains 20.0 percent, crops harvested for hay 22.9 percent, and fruit and berries the remainder.
- Corn was the most important single crop in terms of acres harvested, followed by crops harvested as hay, with third place held by soybeans.



Land Use in Subarea 5, 1970 (left) and 1900 (right).



Land Uses in Subarea 5

Categories of Use	1970 Acres	1970 Percent	1900 Acres	1900 Percent
Land in Farms				
In Crops Harvested	414,603	30.6	631,171	47.4
In All Other Uses	562,725	41.5	668,940	50.3
Total	977,328	72.1	1,300,111	97.7
Land Not in Farms				
Urban and Built-up Uses				
Urban and Built-up Areas	88,140		NA	
Federal Non-Cropland	467		NA	
Water Areas	2,318		NA	
Total Urban and Built-up Uses	90,925	6.7	7,944	0.6
All Other Land Not in Farms	287,267	21.2	23,145	1.7
Total Land Not in Farms	378,192	27.9	31,089	2.3
Total Physical Area (Farm and Non-Farm)	1,355,520	100.0	1,331,200	100.0

• The average size of farm was 147.0 acres, with the average for the state 153.7. Approximately one out of every seven farms contained 260 acres or more. Farms with less than 100 acres accounted for 45 percent of the total number.

• 56.8 percent of the land in farms was operated by farmers who own all of the land they operate. Part owners, part renters operated 32.2 percent and full tenant operators 11.0 percent.

• The number of animal units of roughage and pasture-consuming livestock, excluding horses and mules, per 100 acres of land in farms was 6.7, a stocking level exceeded by only three of the 11 subareas.

• The total population per square mile was 115.3, of which 8.4 was farm and 106.9 non-farm. It was one of the four least densely populated subareas.

Data on Land Use and Selected Factors Show:

• Land in farms declined 322,793 acres or one-fourth. Increase in Urban and Built-up Uses accounted for only one-fourth of the decline or 82,981 acres. Increases in other non-farm land were responsible for the remainder.

• The acreage of crops harvested declined by 34.3 percent or at a rate significantly more rapid than the area in farms.

• Some increase in the importance of intertilled crops in the cropping system occurred. However, it was significantly less pronounced than in the western and north central parts of the state. This increase was at the expense of both small grains and crops harvested for hay.

• Acreage of corn remained relatively unchanged through the first 60 years of the period in face of fairly substantial decreases in land in farms and in the acreage of crops harvested. However, corn acreage declined sharply between 1960 and 1970, with the acres absorbed by a corresponding increase in soybeans.

• Practically no change took place in the proportion of farms in the different size groups until the decade of the 1940's. However, by 1970 the average size of farm was about 50 percent larger and farms with 500 acres or more increased from 44 to 195. Significant reductions occurred in all size groups with less than 180 acres.

• The percentage of land in farms operated by full owners remained very stable over the 50 years for which data are available. However, the percent operated by full tenants decreased from 34.4 to 11.0 and that operated by part owner, part tenant operators increased from 10.3 to 32.2 percent.

• Although the animal units of roughage and pasture-consuming livestock, exclusive of horses and mules, per 100 acres of land in farms remained fairly stable over the 70 years, significant changes occurred in the proportion of the different types. In both 1900 and 1910, the animal units of mature sheep exceeded that of any of the other types, including draft animals. Sheep remained important but at a somewhat lower level between 1920 and 1940. Since then they have decreased rapidly. Dairying, always important in the area, gradually increased in the number of cows milked through 1940. However, since then cows milked have declined to less than half their peak number. During the first 40 years, beef cow numbers fluctuated at a relatively low level, but have increased rapidly during the last 30 years and in 1970 were approximately the same as dairy cow numbers.

• Farm population declined to 8.4 per square mile or about one-third of the 1930 density, while non-farm population more than doubled.

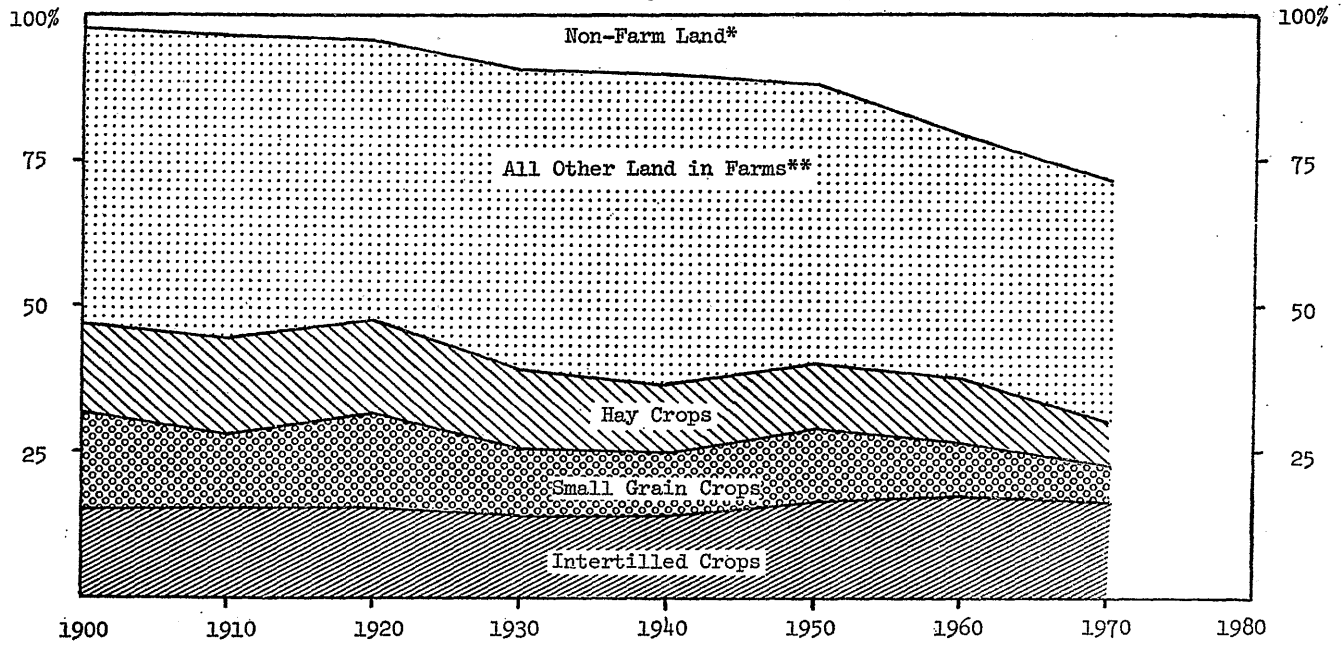
Some General Observations

Land in farms will continue to decline but at a somewhat slower rate than in the two preceding decades. The pressure from non-farm population growth will persist due primarily to continued residential and industrial growth, but some of these needs will be met by land already outside of farms. This will be true if the demand for farm commodities remains strong and farm income is sufficiently favorable to enable agriculture to compete for land. Some of the land both in farms and outside of farms in the area is sufficiently near the economic margin that any major change in farm costs or prices will affect the acreage in farms and the acres of land in farms planted to crops for harvest.

An increase in the acreage of crops harvested appears likely during the 1970's as a result of some of the more productive idle cropland being brought back into use which was withdrawn from production during the decade of the 1960's in compliance with ASC. Part of this will result from some increase in demand for farm commodities and part from new technologies such as no-till corn production which reduces soil erosion losses.

Farm numbers will continue to decrease as inadequate size farm operations are discontinued and the land is consolidated into large units, with much of the consolidation accomplished by owners renting nearby blocks of land. Part-time farming will continue to be important due to many non-farm employment opportunities in the area. This, in turn, will favor the beef cow-calf enterprises because their total operation is flexible and requires relatively little labor.

Land Use in Subarea 5 by Census Periods, 1900-1970.



*Includes Urban and Built-up Uses, scattered non-farm rural residences, brush, forest, and wasteland outside farms.
**Includes cropland which is idle, fallow, and failed; cropland used only for pasture; non-cropland, non-woodland pasture; woodland; and land occupied by farmsteads, farm roads, ponds, and wasteland.

TABLE 36.—Total Land Area and Acreage by Different Use Categories, Ohio Subarea 5, by Census Periods, 1900-1970.

Census Period	Total Land Area	Total Land Outside Farms	Land in Farms						
			Total in Farms	Cropland				Woodland Pastured & Not Pastured	All Other Land in Farms[2]
				Cropland Total[1]	Harvested	Idle, Fallow and Failed	Pastured Only[1]		
1900	1,331,200	31,089	1,300,111	NA	631,171	NA	NA	NA	NA
1910	1,331,200	41,375	1,289,825	NA	600,685	NA	NA	151,086	NA
1920	1,331,200	57,228	1,273,972	NA	650,635	NA	NA	156,596	NA
1930	1,331,200	121,330	1,209,870	648,738	531,791	46,440	70,507	134,345	NA
1940	1,356,160	137,336	1,218,824	652,166	507,355	45,385	99,426	119,992	NA
1950	1,356,160	161,625	1,194,535	734,635	553,596	54,114	126,925	149,982[3]	309,918
1960	1,356,160	275,785	1,080,375	697,559	515,753	70,582	111,224	131,440	251,376
1970	1,355,520	378,192	977,328	684,186	414,603	136,707	132,876	124,133	169,009

[1]Total Cropland and Cropland Used Only for Pasture were not reported in censuses prior to 1950. In 1930 and 1940, the census reported an acreage of Plowable Pasture, defined as the land used only for pasture which could have been used for crops without clearing and draining. As interpreted by most farmers, this included their open (brush and tree-free) permanent pasture, as well as their cropland used only for pasture. Consequently, it could not be added to the acreage of crops harvested and the idle, fallow, and failed acres to obtain a Total Cropland acreage. In 1950, the Bureau of the Census shifted from the classification of Plowable Pasture to Cropland Used Only for Pasture, and obtained an acreage figure which, although it probably still contained some permanent pasture land, was considered a sufficiently reliable reflection of cropland to permit the reporting of a Total Cropland acreage.
[2]Non-crop, non-woodland pasture and land in house and barn lots, lanes, roads, ditches, ponds, and wasteland.
[3]No definition was given farm operators or census enumerators in 1950, which may explain this improbable increase.

TABLE 37.—Acreage of Principal Crops Harvested by Types of Crops, Ohio Subarea 5, by Census Periods, 1900-1970.

	1900	1910	1920	1930	1940	1950	1960	1970
Row or Intertilled Crops								
Corn, All Purposes	195,678	195,925	205,809	181,190	174,195	193,705	192,691	144,573
Soybeans	NA	NA	NA	4,749	17,912	28,683	42,460	86,437
Potatoes, Irish & Sweet	5,639	8,917	4,463	4,491	2,757	493	417	320
Vegetables for Sale	3,550	4,300	1,585	1,420	945	968	850	347
Tobacco	NA	NA	NA	NA	NA	NA	NA	NA
Sugarbeets	NA	NA	NA	NA	NA	NA	NA	NA a/
Popcorn	123	NA	NA	16	188	350	956	1,300
Total	204,990	209,142	211,857	191,866	195,997	224,199	237,374	232,977
Small Grain								
Wheat	176,667	117,373	199,951	110,069	117,891	137,770	72,199	48,763
Oats	42,162	44,465	33,627	42,133	20,237	41,424	49,629	
Barley	132	116	855	693	406	348	2,448	33,501
Rye	909	5,912	4,542	3,191	4,319	607	1,196	
Mixed & Other Grains	299	321	339	925	2,410	863	909	
Total	220,169	168,187	239,314	157,011	145,263	181,012	126,381	82,264
Hay Crops Harvested	184,310	210,386	191,344	168,755	147,858	134,956	116,040	94,562
Fruit, Nuts, Berries	18,740 b/	12,970 b/	8,120 b/	8,795	6,255	4,652	2,929	2,307
Total Crops Harvested c/	628,209	600,685	650,635	526,427	495,373	544,849	482,724	412,110

[a]Source: Crop Reporting Service.
[b]Derived by converting number of trees and vines to acres.
[c]See section on Discrepancies, page 5.

TABLE 38.—Total Number of Farms and Number by Size Groups, Ohio Subarea 5, by Census Periods, 1900-1970.

	1900	1910	1920	1930	1940	1950	1960	1970
Total Number of Farms	14,036	13,729	13,253	12,087	12,233	10,929	8,181	6,648
Average Acres Per Farm	92.6	93.9	96.1	100.1	99.6	109.3	132.1	147.0
Number of Farms:								
Under 10 Acres	877	900	804	681	929	816	337	246
10 - 49 Acres	2,972	2,998	2,556	2,225	2,288	2,180	1,485	1,077
50 - 99 Acres	4,708	4,355	4,286	3,830	3,669	2,906	2,125	1,679
100 - 179 Acres	3,957	4,034	4,302	3,938	3,857	3,165	2,256	1,879
180 - 259 Acres	1,058	1,013	937	1,012	1,031	1,134	1,047	846
260 - 499 Acres	434	399	348	373	415	652	795	726
500 Acres or More	30	30	20	28	44	76	136	195

TABLE 39.—Acreage of Land Operated Under Different Tenure Systems, Ohio Subarea 5, by Census Periods, 1900-1970.

Census Period	Total Acreage in Farms		Full Owners		Part Owners		Tenant Operators		Manager Operated	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
1900 a/	1,300,111		N/A		N/A		N/A		N/A	
1910 a/	1,289,825		N/A		N/A		N/A		N/A	
1920	1,273,972	100	681,961	53.5	130,755	10.3	438,093	34.4	23,163	1.8
1930	1,209,870	100	690,642	57.1	153,254	12.7	348,317	28.8	17,657	1.4
1940	1,218,824	100	696,702	57.2	152,832	12.5	356,442	29.2	12,848	1.1
1950	1,194,535	100	665,999	55.7	265,836	22.3	249,921	20.9	12,779	1.1
1960	1,080,375	100	563,454	52.2	339,769	31.4	168,620	15.6	8,532	0.8
1970	977,328	100	554,848	56.8	314,907	32.2	107,573	11.0	N/A	

[a]Available for total state only in 1900 and 1910 census reports.

TABLE 40.—Number of Horses and Mules, Dairy Cows, Beef Cows, and Sheep on Farms, Ohio Subarea 5, by Census Periods, 1900-1970.

Census Period	Number of Animals				Number of Animal Units 3/			
					Including horses and mules		Excluding horses and mules	
	Horses and Mules (all ages) 1/	Dairy Cows	Beef Cows	Sheep (One year old & over)	Total 2/	Per 100 Acres in Farms	Total	Per 100 Acres in Farms
1900	47,784	36,823	5,120	261,431	137,235	10.6	94,229	7.3
1910	49,621	41,914	8,254	366,207	168,068	13.0	123,409	9.6
1920	43,280	43,559	9,843	202,577	132,869	10.4	93,917	7.4
1930	27,569	45,220	2,448	229,509	118,382	9.8	93,570	7.7
1940	25,191	57,811	3,473	228,106	129,577	10.6	106,905	8.8
1950	7,355	55,874	10,106	102,695	93,139	7.8	86,519	7.2
1960	3,917	41,665	21,440	93,667	85,363	7.9	81,838	7.6
1970	4,261	27,172	26,248	60,416 4/	69,338	7.1	65,503	6.7

[1]Horse and mule numbers are the total of all ages except in 1940, which only provided the number over 3 months of age. In 1900 and 1910, the numbers were provided by three age groups. Later census reports provided no breakdown by age groups. Consequently, to provide the most nearly comparable series, the total number of all ages was used except for 1940. To convert total horse and mule numbers to animal units, a conversion factor of 0.9 was used to adjust for the lower feed consumption of the young animals.

[2]In addition to the horses, mules, and dairy cows on farms in 1900, there were 194,737 horses and mules and 50,393 dairy cows in urban and non-farm areas of the state; in 1910, 194,881 horses and mules and 47,054 dairy cows; and in 1920, 95,206 horses and mules and 46,579 dairy cows. Since 1920, animals in urban and non-farm areas decreased rapidly and numbers were not obtained thereafter by the Bureau of the Census. Horses, mules, and dairy cows not on farms were not included in the above analysis.

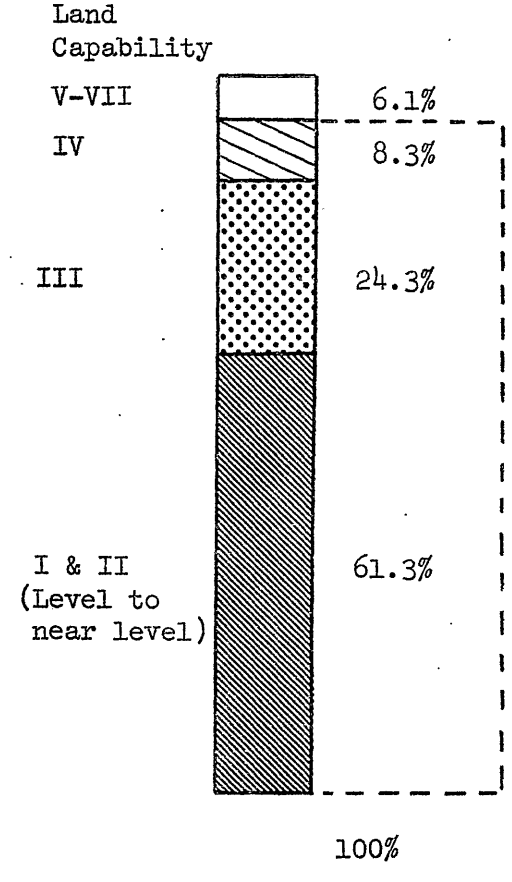
[3]Animal units (A.U.'s) were computed as follows: one horse or mule (all ages) = 0.9 A.U., one dairy cow = 1.0 A.U., one beef cow = 1.0 A.U., and five mature sheep = 1.0 A.U.

[4]The 1970 census only reported total sheep and lambs. Sheep numbers (1 year old and older) were estimated by assuming the same ratio of sheep 1 year old or over to lambs under 1 year as reported in the 1960 census.

TABLE 41.—Farm, Non-Farm, and Total Population, Ohio Subarea 5, by Census Periods, 1900-1970.

Census Period	Farm Population		Non-Farm Population		Total Population	
	Total	Per Sq. Mile	Total	Per Sq. Mile	Total	Per Sq. Mile
1900	NA	--	NA	--	126,976	60.0
1910	NA	--	NA	--	141,787	66.9
1920	NA	--	NA	--	142,060	67.1
1930	50,437	23.8	97,362	46.0	147,799	69.8
1940	50,204	23.7	107,235	50.6	157,439	74.3
1950	44,426	21.0	130,804	61.8	175,230	82.7
1960	28,762	13.6	183,644	86.7	212,406	100.3
1970	17,731	8.4	226,512	106.9	244.243	115.3

Land Capability, Subarea 5



6.1 % Suitable for permanent grazing and/or forest, generally not suitable for cultivation.

93.9 % Suitable for cropping with increasing degrees of erosion control practices and management problems in moving from I to IV.

100.0 % See appendix for land capability characteristics and use restrictions.

SUBAREA 6
NORTH CENTRAL LAKE COUNTIES

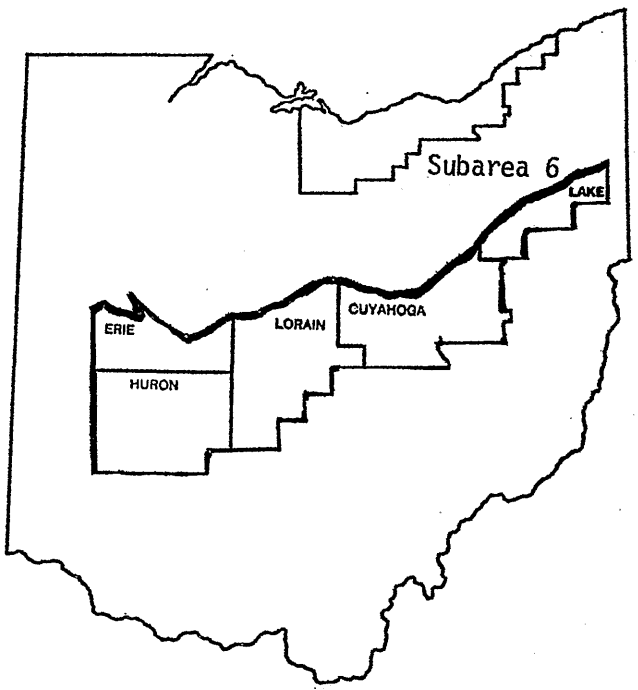
This subarea is made up of five counties, four of which border on Lake Erie. Due to their proximity to the lake, the area tends to be less subject to rapid and extreme temperature changes than the inland counties. The total area was glaciated during the Wisconsin Ice Age. The soils of that part of the area adjacent to the lake and varying in width from a few to 10-12 miles are glacial lake sediments. The soils in the remainder of the area are glacial drift soils. Both the sedimentary and the glacial drift soils are low in lime. In the former, two soil associations are present: Mahoning-Haskins-Allis and Conneaut-Otisville-Elnora; in the latter, Mahoning-Ellsworth is most common.

Approximately half of the total land area was classed as capability I and II land by the CNIC, with drainage rather than erosion responsible for most of the land being capability II. Capability III land accounted for the major part of the remainder, with less than 4 percent of the total V-VII, normally considered unsuitable for crop production. One distinguishing feature of subarea 6 is the past and current importance of fruit, vegetable, greenhouse, nursery, and other intensive crops. Much of the land favorable for these crops has already moved into Urban and Built-up Uses. Nevertheless, no other subarea in the state had a higher percentage of its total land area in these crops in 1970.

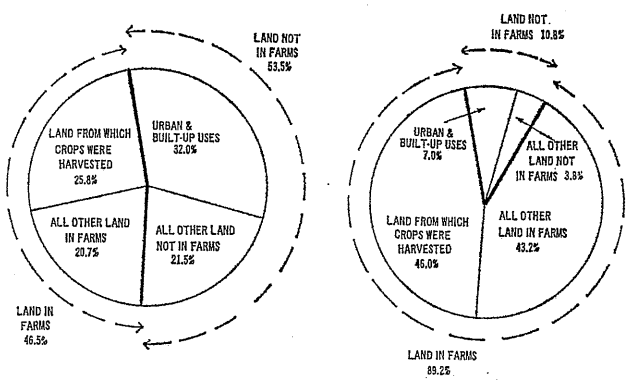
Subarea 6 includes the major part of the Cleveland metropolitan area. In recent years it has also been affected by some of the Toledo metropolitan area to the west, giving it a population density of 1,184 per square mile, the highest of the 11 subareas.

In This Area in 1970:

- Approximately 1 in every 3 acres was absorbed by Urban and Built-up Uses.
- Less than half of the land in the area was in farms.
- Intensive crops such as fruit, vegetables, greenhouse and nursery products, sugarbeets, and potatoes accounted for 5.5 percent of the acreage of crops harvested, the highest of the 11 subareas.
- A little less than two-thirds of the crops harvested were intertilled crops, small grains accounted for 21.7 percent, and crops harvested for hay 11.9 percent.
- The most important crop acre-wise was soybeans with 106,785 acres, followed by corn with 85,278.
- The average acreage of land per farm was 138, the eighth smallest of the 11 subareas. More than



Land Use in Subarea 6, 1970 (left) and 1900 (right).



Land Uses in Subarea 6

Categories of Use	1970 Acres	1970 Percent	1900 Acres	1900 Percent
Land in Farms				
In Crops Harvested	320,316	25.8	574,692	46.0
In All Other Uses	258,097	20.7	539,736	43.2
Total	578,413	46.5	1,114,428	89.2
Land Not in Farms				
Urban and Built-up Uses				
Urban and Built-up Areas	387,874		NA	
Federal Non-cropland	7,090		NA	
Water Areas	2,645		NA	
Total Urban and Built-up Uses	397,609	32.0	86,752	7.0
All Other Land Not in Farms	268,138	21.5	47,460	3.8
Total Land Not in Farms	665,747	53.5	134,212	10.8
Total Physical Area (Farm and Non-farm)	1,244,160	100.0	1,248,640	100.0

half of the farms contained less than 100 acres. However, 596 farms, or one in seven, contained 260 acres or more.

- The most important tenure arrangement by which farmers obtained the use of land was part owner, part renter, with this group operating 47.5 percent of the land in farms. Full owner operators accounted for 41.3 percent and full tenant operators for 11.2 percent.
- The number of animal units of roughage and pasture-consuming livestock, exclusive of horses and mules, was 3.8 per 100 acres of land in farms. Two-thirds of these units were dairy cows. This is the second lowest level of stocking in the state. Only subarea 1 was at a lower level in 1970.
- The total population per square mile was 1,183.6, the highest of the 11 subareas. Farm population was 6.5 per square mile.

Data on Land Use and Selected Factors Show:

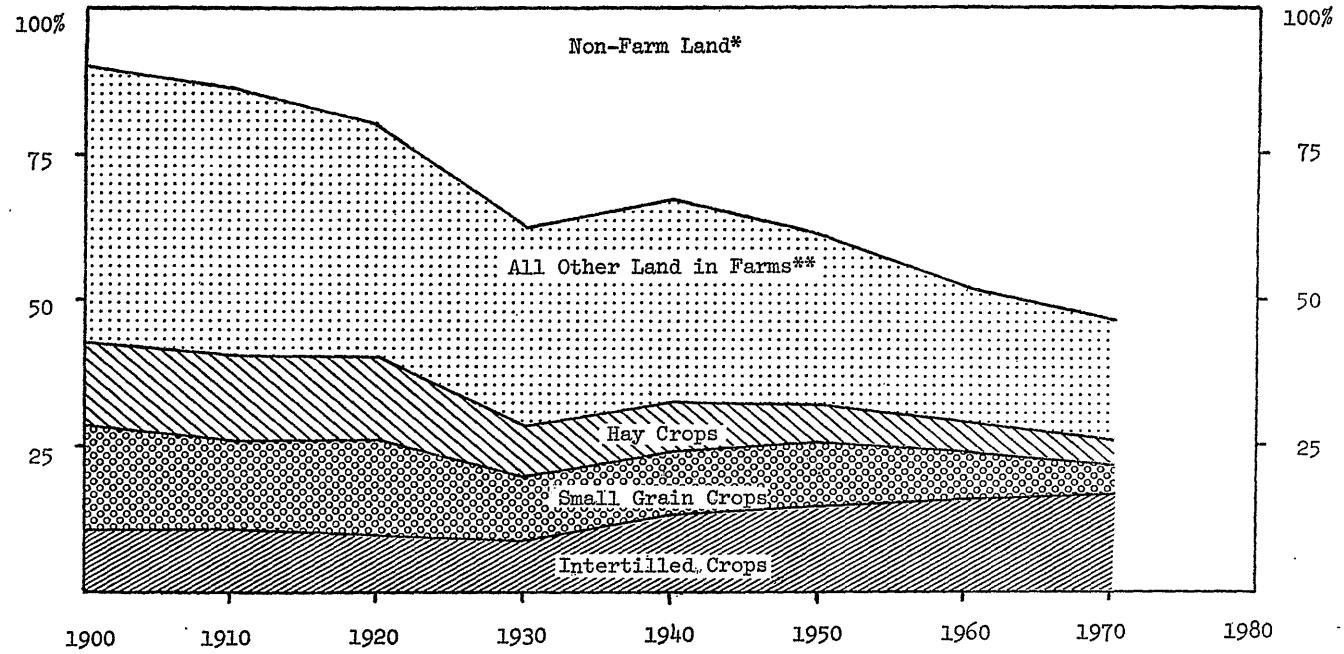
- An increase of 358.3 percent in the land occupied by Urban and Built-up Uses, or from 86,752 to 397,609 acres.
- A shrinkage of land in farms of 48.1 percent or 536,015 acres (1,114,428 to 578,413 acres). The decline was continuous from 1900 except for the decade of the 1930's when some non-farm land was brought back into farming.
- Acreage of crops harvested declined significantly but at a somewhat slower rate than the area in farms.
- The intensive crop acreage (potatoes, vegetables for sale, sugarbeets, and fruit) declined from 68,516 or 12.0 percent of the cropland harvested in 1900 to 17,561 or 5.5 percent in 1970.
- Intertilled crops irregularly increased from 23.2 percent of crops harvested in 1900 to 65.0 percent in 1970. Conversely, small grains declined from 37.6 percent to 21.7, crops harvested for hay from 32.2 percent to 11.9, and fruit and berries from 7.0 percent to 1.4.
- The average farm size increased from 73.3 acres in 1900, the smallest of any of the subareas at that time, to the eighth ranking with 138 acres in 1970. The number of farms in all size groups except those with 260 acres or more decreased sharply over the period. In 1970 there were 158 farms with 500 acres or more compared with 28 farms in 1900. Percentage-wise this was one of the more significant increases in large farms among the 11 subareas.
- As size of farms increased, part owner, part renter operations increased in acreage and full owner and full tenant operated land decreased.
- Roughage and pasture-consuming animal units of livestock decreased rapidly over most of the period, with dairy cows the predominant type throughout the period.

Some General Observations

Land occupied by Urban and Built-up Uses will continue to grow during most of the remainder of the century. Some of this growth will be met by land already outside of farms, but a substantial part will be at the expense of land in farms.

Production of intensive crops will continue to be an important feature of the agriculture of the area and may be expected to increase somewhat if the energy situation and resulting transportation costs increase the economic advantage of nearby production. With the significant adjustments in farm size which have already occurred, it is unlikely that the trend toward larger farms will be as rapid as in recent years. The density of farm population will continue to decline and that of non-farm population will increase, particularly in the western part of the area.

Land Use in Subarea 6 by Census Periods, 1900-1970.



*Includes Urban and Built-up Uses, scattered non-farm rural residences, brush, forest, and wasteland outside farms.
**Includes cropland which is idle, fallow, and failed; cropland used only for pasture; non-cropland, non-woodland pasture; woodland; and land occupied by farmsteads, farm roads, ponds, and wasteland.

TABLE 42.—Total Land Area and Acreage by Different Use Categories, Ohio Subarea 6, by Census Periods, 1900-1970.

Census Period	Total Land Area	Total Land Outside Farms	Land in Farms						
			Total in Farms	Cropland				Woodland Pastured & Not Pastured	All Other Land in Farms[2]
				Cropland Total[1]	Harvested	Idle, Fallow and Failed	Pastured Only[1]		
1900	1,248,640	134,212	1,114,428	NA	574,692	NA	NA	NA	NA
1910	1,248,640	179,191	1,069,449	NA	539,190	NA	NA	126,297	NA
1920	1,248,640	256,889	991,751	NA	524,786	NA	NA	131,958	NA
1930	1,248,640	479,014	769,626	478,256	384,457	72,030	21,769	92,385	NA
1940	1,244,160	412,888	831,272	516,014	425,031	62,761	28,222	85,525	NA
1950	1,244,160	486,020	758,140	513,330	409,300	54,420	49,610	104,752[3]	140,058
1960	1,244,160	600,447	643,713	458,362	372,584	52,891	32,887	80,652	104,699
1970	1,244,160	665,747	578,413	446,547	320,316	96,130	30,101	69,161	62,705

[1]Total Cropland and Cropland Used Only for Pasture were not reported in censuses prior to 1950. In 1930 and 1940, the census reported an acreage of Plowable Pasture, defined as the land used only for pasture which could have been used for crops without clearing and draining. As interpreted by most farmers, this included their open (brush and tree-free) permanent pasture, as well as their cropland used only for pasture. Consequently, it could not be added to the acreage of crops harvested and the idle, fallow, and failed acres to obtain a Total Cropland acreage. In 1950, the Bureau of the Census shifted from the classification of Plowable Pasture to Cropland Used Only for Pasture, and obtained an acreage figure which, although it probably still contained some permanent pasture land, was considered a sufficiently reliable reflection of cropland to permit the reporting of a Total Cropland acreage.
[2]Non-crop, non-woodland pasture and land in house and barn lots, lanes, roads, ditches, ponds, and wasteland.
[3]No definition was given farm operators or census enumerators in 1950, which may explain this improbable increase.

TABLE 43.—Acreage of Principal Crops Harvested by Types of Crops, Ohio Subarea 6, by Census Periods, 1900-1970.

	1900	1910	1920	1930	1940	1950	1960	1970
Row or Intertilled Crops								
Corn, All Purposes	103,024	105,133	106,544	85,652	104,367	105,284	105,944	85,728
Soybeans	NA	NA	NA	1,158	20,201	55,811	75,447	106,785
Potatoes, Irish & Sweet	20,973	25,449	14,924	8,953	9,174	2,265	1,396	1,065
Vegetables for Sale	7,773	13,076	9,719	14,113	15,960	10,469	11,417	10,500
Tobacco	NA	NA	NA	NA	NA	NA	NA	NA
Sugarbeets	NA	11	62	NA	563	518	878	1,590
Popcorn	89	NA	NA	50	687	446	517	700 a/
Total	131,859	143,669	131,249	109,926	150,952	174,793	195,599	206,368
Small Grain								
Wheat	111,069	70,268	114,049	63,858	70,634	80,046	58,179	43,697
Oats	100,184	112,702	82,307	58,112	61,464	59,452	38,063	
Barley	835	818	4,873	2,871	653	395	3,365	25,302
Rye	1,321	3,192	6,610	1,879	2,040	818	1,221	
Mixed & Other Grains	602	1,958	2,207	3,590	1,464	1,435	349	
Total	214,011	188,938	210,046	130,310	136,255	142,146	101,177	68,999
Hay Crops Harvested	183,101	179,053	160,651	112,229	100,076	70,247	59,966	37,894
Fruit, Nuts, Berries	39,770 b/	27,530 b/	22,840 b/	24,734	24,730	14,637	7,625	4,406
Total Crops Harvested c/	568,741	539,190	524,786	377,199	412,013	401,823	364,367	317,667

[a]Source: Crop Reporting Service.
[b]Derived by converting number of trees and vines to acres.
[c]See section on Discrepancies, page 5.

TABLE 44.—Total Number of Farms and Number by Size Groups, Ohio Subarea 6, by Census Periods, 1900-1970.

	1900	1910	1920	1930	1940	1950	1960	1970
Total Number of Farms	15,200	14,908	13,182	9,488	11,541	9,259	5,877	4,191
Average Acres Per Farm	73.3	71.7	75.2	81.1	72.0	81.9	109.5	138.0
Number of Farms:								
Under 10 Acres	1,348	1,544	1,045	771	1,921	1,412	585	346
10 - 49 Acres	5,172	5,157	4,400	2,944	3,755	2,963	1,598	975
50 - 99 Acres	4,579	4,323	4,115	2,729	2,783	2,049	1,309	936
100 - 179 Acres	3,100	2,941	2,791	2,250	2,137	1,713	1,265	883
180 - 259 Acres	701	664	579	551	626	592	573	455
260 - 499 Acres	272	248	228	217	285	490	471	438
500 Acres or More	28	31	24	26	34	40	76	158

TABLE 45.—Acreage of Land Operated Under Different Tenure Systems, Ohio Subarea 6, by Census Periods, 1900-1970.

Census Period	Total Acreage in Farms		Full Owners		Part Owners		Tenant Operators		Manager Operated	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
1900 a/	1,114,428		N/A		N/A		N/A		N/A	
1910 a/	1,069,449		N/A		N/A		N/A		N/A	
1920	991,751	100	539,883	54.5	120,492	12.1	286,263	28.9	45,113	4.5
1930	769,626	100	427,450	55.5	126,106	16.4	186,997	24.3	29,073	3.8
1940	831,272	100	432,150	52.0	152.470	18.3	214,601	25.8	32,051	3.9
1950	758,140	100	401,499	53.0	222,424	29.3	121,252	16.0	12,965	1.7
1960	643,713	100	296,960	46.1	246,714	38.3	88,583	13.8	11,456	1.8
1970	578,413	100	239,143	41.3	274,710	47.5	64,560	11.2	N/A	

[a]Available for total state only in 1900 and 1910 census reports.

TABLE 46.—Number of Horses and Mules, Dairy Cows, Beef Cows, and Sheep on Farms, Ohio Subarea 6, by Census Periods, 1900-1970.

Census Period	Number of Animals				Number of Animal Units[3/]			
					Including horses and mules		Excluding horses and mules	
	Horses and Mules (all ages)[1/]	Dairy Cows	Beef Cows	Sheep (One year old & over)	Total[2/]	Per 100 Acres in Farms	Total	Per 100 Acres in Farms
1900	44,217	50,942	3,519	113,832	117,022	10.5	77,227	6.9
1910	43,083	50,557	5,224	106,473	115,851	10.8	77,076	7.2
1920	36,109	49,833	2,553	59,952	96,874	9.8	64,376	6.5
1930	19,248	33,368	591	56,924	62,667	8.1	45,344	5.9
1940	17,431	39,468	1,009	52,875	66,740	8.0	51,052	6.1
1950	4,775	30,608	1,526	25,112	41,454	5.5	37,156	4.9
1960	2,160	22,993	3,095	21,719	32,376	5.0	30,432	4.7
1970	2,994	15,047	3,898	15,221[4/]	24,684	4.3	21,989	3.8

[1]Horse and mule numbers are the total of all ages except in 1940, which only provided the number over 3 months of age. In 1900 and 1910, the numbers were provided by three age groups. Later census reports provided no breakdown by age groups. Consequently, to provide the most nearly comparable series, the total number of all ages was used except for 1940. To convert total horse and mule numbers to animal units, a conversion factor of 0.9 was used to adjust for the lower feed consumption of the young animals.

[2]In addition to the horses, mules, and dairy cows on farms in 1900, there were 194,737 horses and mules and 50,393 dairy cows in urban and non-farm areas of the state; in 1910, 194,881 horses and mules and 47,054 dairy cows; and in 1920, 95,206 horses and mules and 46,579 dairy cows. Since 1920, animals in urban and non-farm areas decreased rapidly and numbers were not obtained thereafter by the Bureau of the Census. Horses, mules, and dairy cows not on farms were not included in the above analysis.

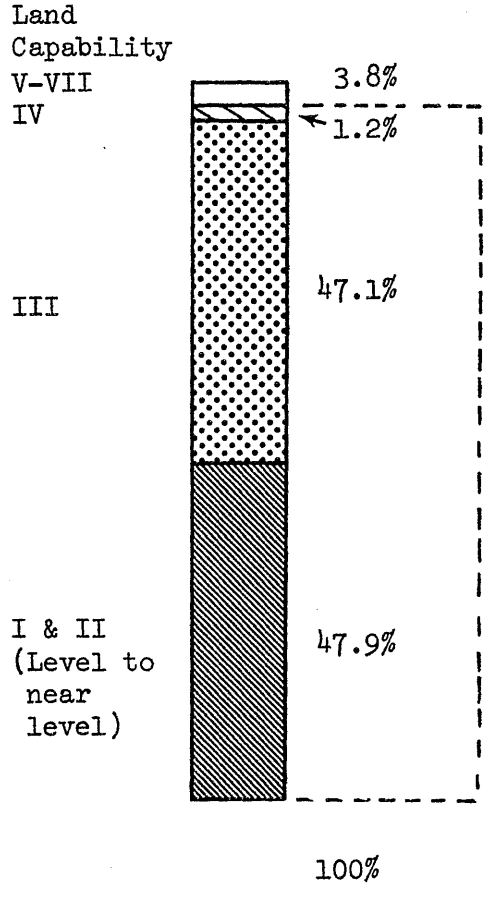
[3]Animal units (A.U.'s) were computed as follows: one horse or mule (all ages) = 0.9 A.U., one dairy cow = 1.0 A.U., one beef cow = 1.0 A.U., and five mature sheep = 1.0 A.U.

[4]The 1970 census only reported total sheep and lambs. Sheep numbers (1 year old and older) were estimated by assuming the same ratio of sheep 1 year old or over to lambs under 1 year as reported in the 1960 census.

TABLE 47.—Farm, Non-Farm, and Total Population, Ohio Subarea 6, by Census Periods, 1900-1970.

Census Period	Farm Population		Non-Farm Population		Total Population	
	Total	Per Sq. Mile	Total	Per Sq. Mile	Total	Per Sq. Mile
1900	NA	--	NA	--	585,637	301.3
1910	NA	--	NA	--	808,922	416.1
1920	NA	--	NA	--	1,134,987	583.8
1930	43,077	22.2	1,385,091	712.5	1,428,168	734.7
1940	48,395	24.9	1,409,266	724.9	1,457,661	749.8
1950	35,514	18.3	1,670,077	859.1	1,705,591	877.4
1960	18,838	9.7	2,110,583	1,085.7	2,129,421	1,095.4
1970	12,649	6.5	2,288,190	1,177.1	2,300,839	1,183.6

Land Capability, Subarea 6



3.8 %	Suitable for permanent grazing and/or forest, generally not suitable for cultivation.
96.2 %	Suitable for cropping with increasing degrees of erosion control practices and management problems in moving from I to IV.
100.0 %	See appendix for land capability characteristics and use restrictions.

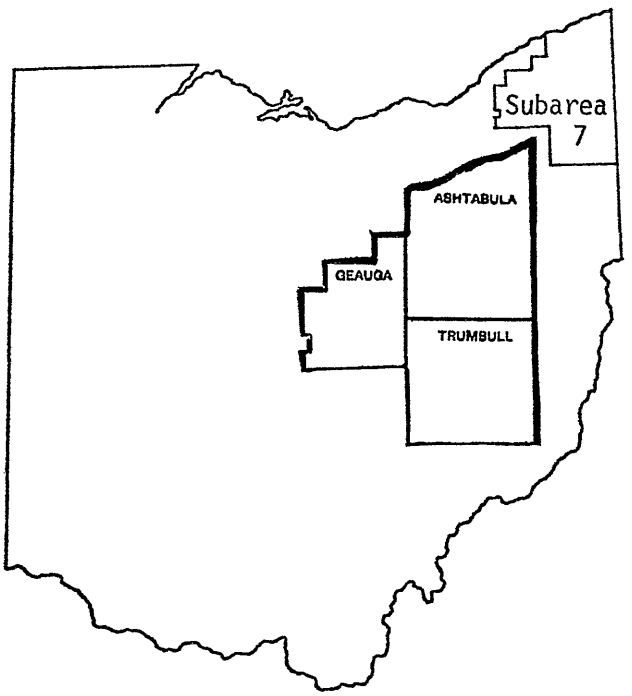
SUBAREA 7
EXTREME NORTHEAST COUNTIES

Subarea 7, comprising three counties in the extreme northeast corner of the state, is the smallest of the 11 subareas. The soils in these three counties are similar in origin to those in subarea 6 to the west and in subarea 8 to the south. All were glaciated and have drainage problems and are deficient in lime. However, these problems tend to be somewhat more acute in subarea 3. Except for a fringe along the lake shore, the topography is somewhat more rolling and hilly, with a greater tendency for the valleys to be swampy in character than in the two adjacent subareas. Climatic conditions, especially temperature in the spring and fall, in conjunction with the light colored soils and slow drainage, result in the area having the shortest growing season of any in the state.

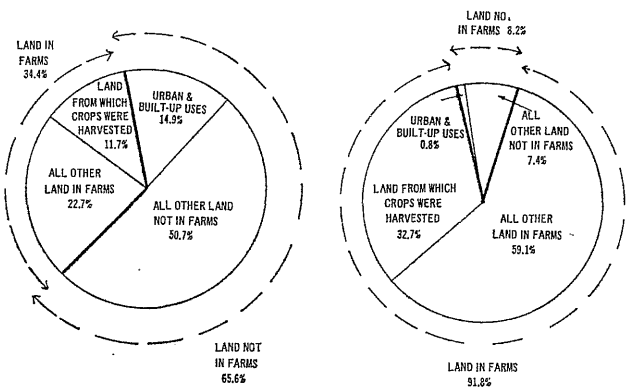
Approximately one-fourth of the total land in the subarea was invoiced as capability I and II land. Only subareas 9 and 10 (unglaciated) contain smaller percentages of capability I and II land. Capability III land comprised 67.4 percent of the total area. Less than 4 percent of the total area was invoiced as classes V through VII, normally considered unsuitable for crop production. The three counties are a part of the Connecticut Western Reserve and were rapidly settled by people from New England and New York State after the War of 1812. Currently the economy of the area is greatly influenced by the Cleveland metropolitan complex on the west and the Akron, Canton, Warren, Youngstown metropolitan complex to the south.

In This Area in 1970:

- Only 34.4 percent of the total land or 1 acre in every 3 was in farms. This was the smallest percentage of any of the 11 subareas. Slightly more than half of the land was neither within farms nor occupied by Urban and Built-up Uses. Much of this unused land has been cleared of forest and farmed during the 19th century, but by 1970 a large part of it had reverted to forest.
- The percentage of land in farms from which crops were harvested was 34.1. Only the three subareas 9, 10, and 11 bordering on the Ohio River had smaller percentages.
- Intertilled crops made up 28.9 percent of all crops harvested, small grains 22 percent, and meadow crops harvested as hay 46.3 percent. Fruit and berries, most of which are grown in the northern part of the area along the lake, accounted for 2.8 percent of the harvested cropland.
- The acreage of crops harvested for hay was almost double that of any other crop. Oats was the



Land Use in Subarea 7, 1970 (left) and 1900 (right).



Land Uses in Subarea 7

Categories of Use	1970 Acres	1970 Percent	1900 Acres	1900 Percent
Land in Farms				
In Crops Harvested	129,460	11.7	370,437	32.7
In All Other Uses	249,828	22.7	670,879	59.1
Total	379,288	34.4	1,041,316	91.8
Land Not in Farms				
Urban and Built-up Uses				
Urban and Built-up Areas	150,422		NA	
Federal Non-cropland	9,249		NA	
Water Areas	4,358		NA	
Total Urban and Built-up Uses	164,029	14.9	8,449	0.8
All Other Land Not in Farms	558,248	50.7	84,315	7.4
Total Land Not in Farms	722,277	65.6	92,764	8.2
Total Physical Area (Farm and Non-farm)	1,101,565	100.0	1,134,080	100.0

most important small grain crop and approximately 1 acre out of every 3 of corn was harvested for silage. Soybeans harvested for grain was a very minor crop and had decreased since 1950.

- The average size of farm in terms of land area was 121.6 acres, the smallest of the 11 subareas.
- Practically all farm operators owned land; more than three out of five owned all of the land they operated.
- The number of animal units of roughage and pasture-consuming livestock per 100 acres in farms, exclusive of horses and mules, was 8.0. This was the second highest level in the state and was exceeded only by subarea 8, immediately to the south and west.
- Total population density was distinctly lower than either of the adjoining subareas and farm population per square mile was below the state average.

Data on Land Use and Selected Factors Show:

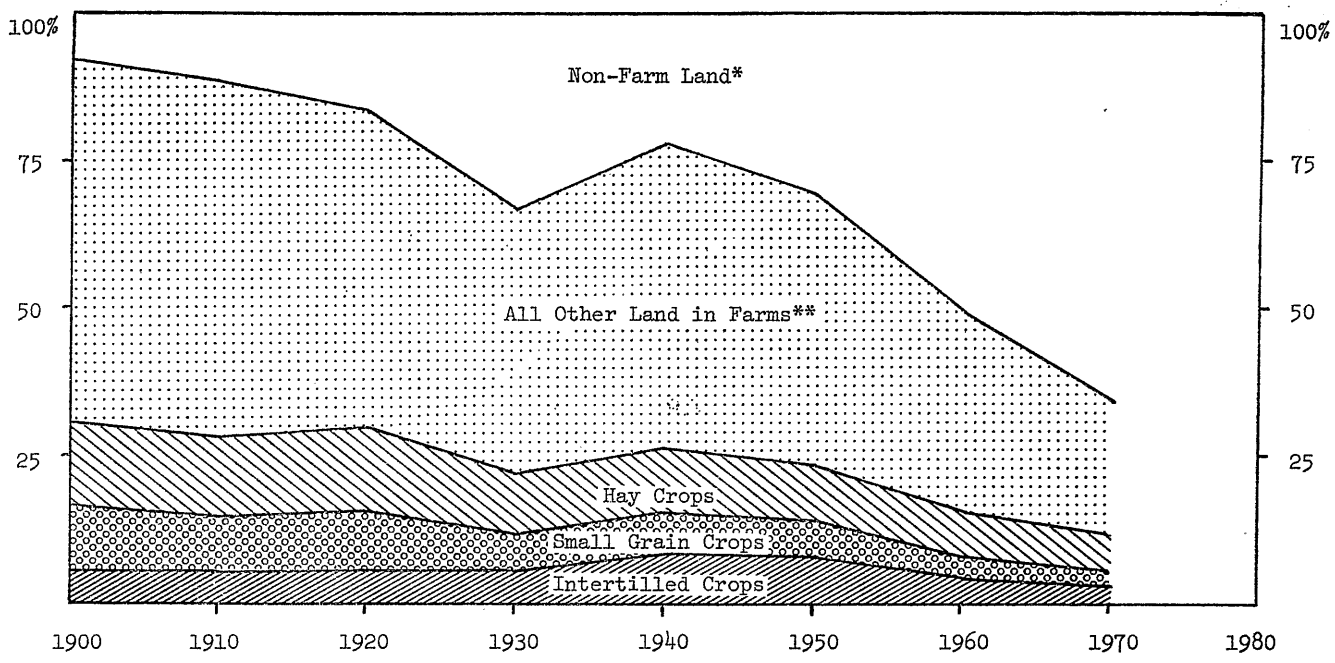
- A 63.6 percent decline in land in farms, from 1,041,316 acres in 1900 to 379,288 acres in 1970. This was the sharpest decline in land in farms of any of the subareas.
- Only 155,580 acres of the 662,028 acres of the decline in land in farms was due to an expansion of Urban and Built-up Uses, with the submarginality of the land for farming accounting for the remainder.
- A decline in acreage of crops harvested from 370,437 to 129,460 or 65.1 percent. Also reflected was a slightly lower percentage of the land remaining in farms in crops harvested in 1970 than in 1900, an indication that the retirement of two-thirds of a million acres of land in farms over the period did not significantly upgrade the productivity of the land remaining in farms at the end of the period.
- The cropping system was dominated by hay crop production in 1900 and continued throughout the entire period. However, the importance of small grains as a percent of crops harvested decreased and that of intertilled crops increased.
- Potatoes, vegetables produced for sale, and fruit crops were important in the cropping system as late as 1940 but declined rapidly since then, especially potatoes.
- The number of farms declined by three-fourths, with each size group reflecting a reduction in number except the group with 500 acres or more.
- The average acreage per farm, although increasing from 87.5 to 121.6 acres, was the smallest increase over the 70 years of any of the subareas.
- The number of animal units of roughage and pasture-consuming livestock per 100 acres of land, other than horses and mules, remained relatively stable over the period, with slightly more in 1970 than in any of the preceding seven census periods. Throughout the 70 years dairying was predominant, with beef cow and sheep numbers being minor.

Some General Observations

Land occupied by Urban and Built-up Uses will continue to increase for several years. Some of the land needed to meet this requirement will be withdrawn from farms, but a major part will be met out of the large acreage currently outside of farms.

The future trend in acreage in farms is much more dependent upon the production cost-price ratio of farm products and the capital supply situation than the rate of urban growth. In terms of land capability, much of subarea 7 is suitable for crop production if cleared, drained, and limed. Except to the extent that it can be relieved by improved drainage, the short growing season will continue to be a major limiting factor in respect to farming. The beef cow-calf and sheep production costs will continue to be high due to the short grazing season and the high cost of providing winter roughage. Consequently, part-time farming employing a beef cow-calf or sheep enterprise, despite their small and flexible labor requirements, is economically relatively unattractive in the area and is likely to continue so.

Land Use in Subarea 7 by Census Periods, 1900-1970.



*Includes Urban and Built-up Uses, scattered non-farm rural residences, brush, forest, and wasteland outside farms.
**Includes cropland which is idle, fallow, and failed; cropland used only for pasture; non-cropland, non-woodland pasture; woodland; and land occupied by farmsteads, farm roads, ponds, and wasteland.

TABLE 48.—Total Land Area and Acreage by Different Use Categories, Ohio Subarea 7, by Census Periods, 1900-1970.

Census Period	Total Land Area	Total Land Outside Farms	Land in Farms						
			Total in Farms	Cropland				Woodland Pastured & Not Pastured	All Other Land in Farms[2]
				Cropland Total[1]	Harvested	Idle, Fallow and Failed	Pastured Only[1]		
1900	1,134,080	92,764	1,041,316	NA	370,437	NA	NA	NA	NA
1910	1,134,080	129,529	1,004,551	NA	334,345	NA	NA	165,584	NA
1920	1,134,080	189,432	944,648	NA	351,785	NA	NA	178,050	NA
1930	1,134,080	375,859	758,221	337,201	265,116	71,271	814	154,119	NA
1940	1,109,120	245,017	864,103	363,255	304,301	58,954	0	129,703	NA
1950	1,109,120	339,429	769,691	388,634	262,791	81,355	44,488	185,399[3]	195,658
1960	1,109,120	567,661	541,459	292,647	179,373	69,627	43,647	132,387	116,425
1970	1,101,565	722,277	379,288	222,577	129,460	47,407	45,710	92,834	63,877

[1]Total Cropland and Cropland Used Only for Pasture were not reported in censuses prior to 1950. In 1930 and 1940, the census reported an acreage of Plowable Pasture, defined as the land used only for pasture which could have been used for crops without clearing and draining. As interpreted by most farmers, this included their open (brush and tree-free) permanent pasture, as well as their cropland used only for pasture. Consequently, it could not be added to the acreage of crops harvested and the idle, fallow, and failed acres to obtain a Total Cropland acreage. In 1950, the Bureau of the Census shifted from the classification of Plowable Pasture to Cropland Used Only for Pasture, and obtained an acreage figure which, although it probably still contained some permanent pasture land, was considered a sufficiently reliable reflection of cropland to permit the reporting of a Total Cropland acreage.
[2]Non-crop, non-woodland pasture and land in house and barn lots, lanes, roads, ditches, ponds, and wasteland.
[3]No definition was given farm operators or census enumerators in 1950, which may explain this improbable increase.

TABLE 49.—Acreage of Principal Crops Harvested by Types of Crops, Ohio Subarea 7, by Census Periods, 1900-1970.

	1900	1910	1920	1930	1940	1950	1960	1970
Row or Intertilled Crops								
Corn, All Purposes	51,412	48,670	59,143	48,825	71,766	60,409	43,797	33,574
Soybeans	NA	NA	NA	1,202	2,606	4,628	1,973	2,329
Potatoes, Irish & Sweet	13,166	15,341	10,158	8,898	10,182	1,627	443	247
Vegetables for Sale	2,845	3,367	1,266	2,681	3,048	2,026	1,221	1,018
Tobacco	NA	NA	NA	NA	NA	NA	NA	NA
Sugarbeets	NA	NA	NA	NA	NA	NA	NA	NA
Popcorn	87	NA	NA	NA	35	17	NA	a/
Total	67,510	67,378	70,567	61,606	87,637	68,707	47,434	37,168
Small Grain								
Wheat	46,157	18,616	31,605	10,568	18,472	37,301	11,568	6,771
Oats	67,017	67,119	58,472	43,958	52,203	42,388	30,696	
Barley	126	75	348	165	99	194	903	21,427
Rye	500	1,744	3,789	1,297	2,799	716	473	
Mixed & Other Grains	4,287	13,787	15,511	9,915	3,923	4,092	203	
Total	118,087	101,341	109,725	65,903	77,496	84,691	43,843	28,198
Hay Crops Harvested	165,508	153,996	158,343	123,125	120,774	97,236	78,706	59,486
Fruit, Nuts, Berries	16,800 b/	11,630 b/	13,150 b/	14,244	14,105	10,518	5,880	3,638
Total Crops Harvested c/	367,905	334,345	351,785	264,878	300,012	261,152	175,863	128,490

[a]Source: Crop Reporting Service.
[b]Derived by converting number of trees and vines to acres.
[c]See section on Discrepancies, page 5.

TABLE 50.—Total Number of Farms and Number by Size Groups, Ohio Subarea 7, by Census Periods, 1900-1970.

	1900	1910	1920	1930	1940	1950	1960	1970
Total Number of Farms	11,903	11,956	11,288	9,168	11,296	9,263	5,226	3,118
Average Acres Per Farm	87.5	84.0	83.7	82.7	76.5	83.1	103.6	121.6
Number of Farms:								
Under 10 Acres	599	815	797	636	1,269	817	205	125
10 - 49 Acres	3,240	3,175	3,025	2,361	3,184	2,684	1,271	610
50 - 99 Acres	3,896	3,987	3,773	3,227	3,694	2,900	1,690	932
100 - 179 Acres	3,057	2,973	2,778	2,271	2,357	2,037	1,350	860
180 - 259 Acres	785	722	640	482	557	541	434	324
260 - 499 Acres	295	263	246	176	206	247	236	215
500 Acres or More	31	21	29	15	29	37	40	52

TABLE 51.—Acreage of Land Operated Under Different Tenure Systems, Ohio Subarea 7, by Census Periods, 1900-1970.

Census Period	Total Acreage in Farms		Full Owners		Part Owners		Tenant Operators		Manager Operated	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
1900 a/	1,014,316		N/A		N/A		N/A		N/A	
1910 a/	1,004,551		N/A		N/A		N/A		N/A	
1920	944,648	100	609,783	64.6	89,106	9.4	210,803	22.3	34,956	3.7
1930	758,221	100	519,543	68.5	84,387	11.1	134,724	17.8	19,567	2.6
1940	864,103	100	576,831	66.7	96,362	11.2	163,162	18.9	27,748	3.2
1950	769,691	100	542,906	70.5	142,485	18.5	67,353	8.8	16,947	2.2
1960	541,459	100	351,594	65.0	137,145	25.3	35,827	6.6	16,893	3.1
1970	379,288	100	238,584	62.9	119,069	31.4	21,635	5.7	N/A	

[a]Available for total state only in 1900 and 1910 census reports.

TABLE 52.—Number of Horses and Mules, Dairy Cows, Beef Cows, and Sheep on Farms, Ohio Subarea 7, by Census Periods, 1900-1970.

Census Period	Number of Animals				Number of Animal Units 3/			
					Including horses and mules		Excluding horses and mules	
	Horses and Mules (all ages) 1/	Dairy Cows	Beef Cows	Sheep (One year old & over)	Total 2/	Per 100 Acres in Farms	Total	Per 100 Acres in Farms
1900	32,431	61,302	5,638	65,670	109,262	10.5	80,074	7.7
1910	31,573	64,986	5,607	33,204	105,650	10.5	77,234	7.7
1920	29,617	62,435	1,065	16,856	93,526	9.9	66,871	7.1
1930	16,839	43,593	763	13,671	62,245	8.2	47,090	6.2
1940	18,095	58,970	1,046	8,487	77,999	9.0	61,713	7.1
1950	8,458	45,384	2,080	4,270	55,930	7.3	48,318	6.3
1960	4,625	35,615	3,304	4,785	44,039	8.1	39,876	7.4
1970	3,805	24,267	5,178	3,567 4/	33,583	8.9	30,158	8.0

[1]Horse and mule numbers are the total of all ages except in 1940, which only provided the number over 3 months of age. In 1900 and 1910, the numbers were provided by three age groups. Later census reports provided no breakdown by age groups. Consequently, to provide the most nearly comparable series, the total number of all ages was used except for 1940. To convert total horse and mule numbers to animal units, a conversion factor of 0.9 was used to adjust for the lower feed consumption of the young animals.

[2]In addition to the horses, mules, and dairy cows on farms in 1900, there were 194,737 horses and mules and 50,393 dairy cows in urban and non-farm areas of the state; in 1910, 194,881 horses and mules and 47,054 dairy cows; and in 1920, 95,206 horses and mules and 46,579 dairy cows. Since 1920, animals in urban and non-farm areas decreased rapidly and numbers were not obtained thereafter by the Bureau of the Census. Horses, mules, and dairy cows not on farms were not included in the above analysis.

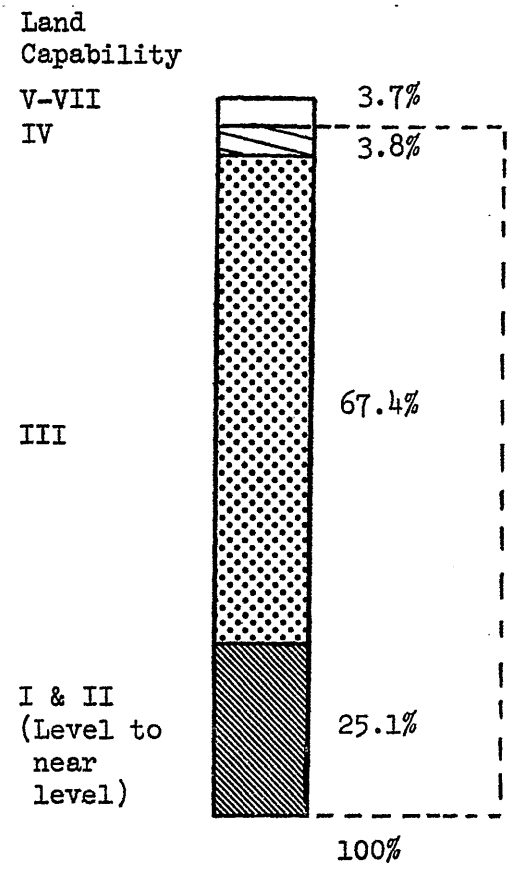
[3]Animal units (A.U.'s) were computed as follows: one horse or mule (all ages) = 0.9 A.U., one dairy cow = 1.0 A.U., one beef cow = 1.0 A.U., and five mature sheep = 1.0 A.U.

[4]The 1970 census only reported total sheep and lambs. Sheep numbers (1 year old and older) were estimated by assuming the same ratio of sheep 1 year old or over to lambs under 1 year as reported in the 1960 census.

TABLE 53.—Farm, Non-Farm, and Total Population, Ohio Subarea 7, by Census Periods, 1900-1970.

Census Period	Farm Population		Non-Farm Population		Total Population	
	Total	Per Sq. Mile	Total	Per Sq. Mile	Total	Per Sq. Mile
1900	NA	--	NA	--	112,783	65.5
1910	NA	--	NA	--	126,983	73.8
1920	NA	--	NA	--	164,501	95.6
1930	41,674	24.2	165,164	96.0	206,838	120.2
1940	48,076	27.9	172,343	100.1	220,419	128.1
1950	42,124	24.5	222,132	129.1	264,256	153.5
1960	17,605	10.2	331,561	192.5	349,166	202.9
1970	12,077	7.0	381,716	221.8	393,793	228.8

Land Capability, Subarea 7



3.7 %	Suitable for permanent grazing and/or forest, generally not suitable for cultivation.
96.3 %	Suitable for cropping with increasing degrees of erosion control practices and management problems in moving from I to IV.
100.0 %	See appendix for land capability characteristics and use restrictions.

SUBAREA 8
EASTERN OHIO "BACKBONE" OR WATERSHED COUNTIES

This subarea consists of 10 counties in the southern half of the northeastern quarter of the state. It lays across the divide between the Lake Erie drainage basin to the north and the Ohio River drainage basin to the south. These counties are sometimes referred to as the "backbone counties" of the state. For the most part, this area was settled by the Pennsylvania Dutch who brought with them a livestock and wheat farming tradition.[17] Currently the area includes several Amish communities.

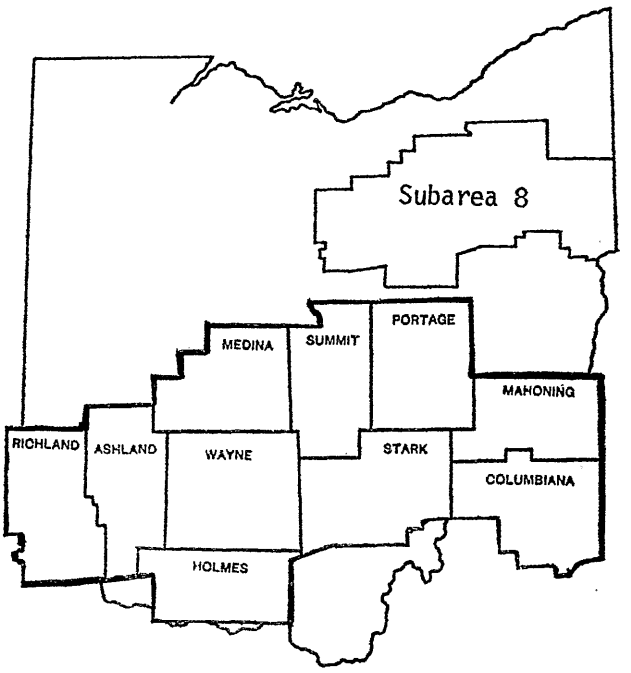
Except for part of the southern fringe, subarea 8 was covered by glaciers of the Wisconsin Ice Age, resulting in a rolling to hilly terrain of glacial till soils derived from sandstone and shale. The soils in the western part of the area are predominantly of the Rittman-Wadsworth and Wooster-Canfield-Ravenna series, with the soils in the eastern part consisting largely of the Ellsworth-Mahoning-Trumbull series.

Approximately 50 percent of the total land area was invoiced by the CNIC as capability I and II land, with erosion more of a problem than drainage for the capability II land. The committee invoiced 32.6 percent of the land as capability III and 8.5 percent as capability IV, thus bringing the total amount of land capable of being used for crop production to 90.6 percent if suitable erosion control practices are employed. Competition from non-farm land uses is an important feature, particularly in the eastern part, due to the rapid growth of the Akron-Canton-Youngstown metropolitan complex.

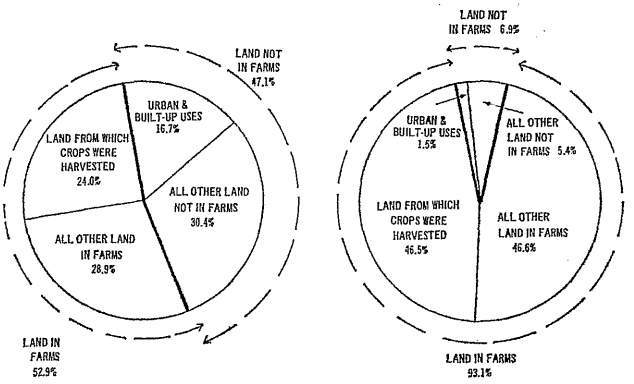
In This Area in 1970:

- 1 acre out of every 6 was occupied by Urban and Built-up Uses and only slightly more than 3 of the 6 acres (52.9 percent) were in farms. Non-farm, non-urban land accounted for the other 2 acres.
- The percentage of land in farms in crops harvested was 45.3 percent, which was slightly less than the state average.
- Intertilled crops made up 40.8 percent of crops harvested, small grains 25.7, crops harvested as hay 32.5, and fruit and berries 1.0. The percentage of small grain crops was higher in this subarea than any other subarea of the state in 1970.
- The average size of farm was 124.6 acres, next to the smallest in the state. Only 9.1 percent of the farms contained 260 acres or more compared to the total state with 15.9 percent.
- The percentage of land operated by full tenant operators (8.7 percent) was the fourth lowest of

[17]The Agriculture of Ohio, Ohio Agri. Exp. Sta., Bull. 326, p. 10.



Land Use in Subarea 8, 1970 (left) and 1900 (right).



Land Uses in Subarea 8

Categories of Use	1970 Acres	1970 Percent	1900 Acres	1900 Percent
Land in Farms				
In Crops Harvested	728,944	24.0	1,425,648	46.5
In All Other Uses	879,566	28.9	1,429,675	46.6
Total	1,608,510	52.9	2,855,323	93.1
Land Not in Farms				
Urban and Built-up Uses				
Urban and Built-up Areas	475,722		NA	
Federal Non-cropland	25,377		NA	
Water Areas	7,349		NA	
Total Urban and Built-up Uses	508,448	16.7	45,431	1.5
All Other Land Not in Farms	923,534	30.4	164,846	5.4
Total Land Not in Farms	1,431,982	47.1	210,277	6.9
Total Physical Area (Farm and Non-farm)	3,040,492	100.0	3,065,600	100.0

the subareas and the percentage operated by full owner operators (57.6 percent) was the fifth highest.

- The density of roughage and pasture-consuming animal units, exclusive of horses and mules, per 100 acres of land in farms was highest among all subareas, with dairy cows accounting for three-fourths of the animal units.
- Non-farm population density was 373.7, fourth highest of the subareas, and farm population density was 11.3, also fourth highest in the state and highest of the six subareas in the eastern half of the state. The ready access to non-farm employment favorable for part-time farming, the fairly intensive crop and livestock enterprises present in the area, and the presence of several Amish communities account for the above average farm population density.

Data on Land Use and Selected Factors Show:

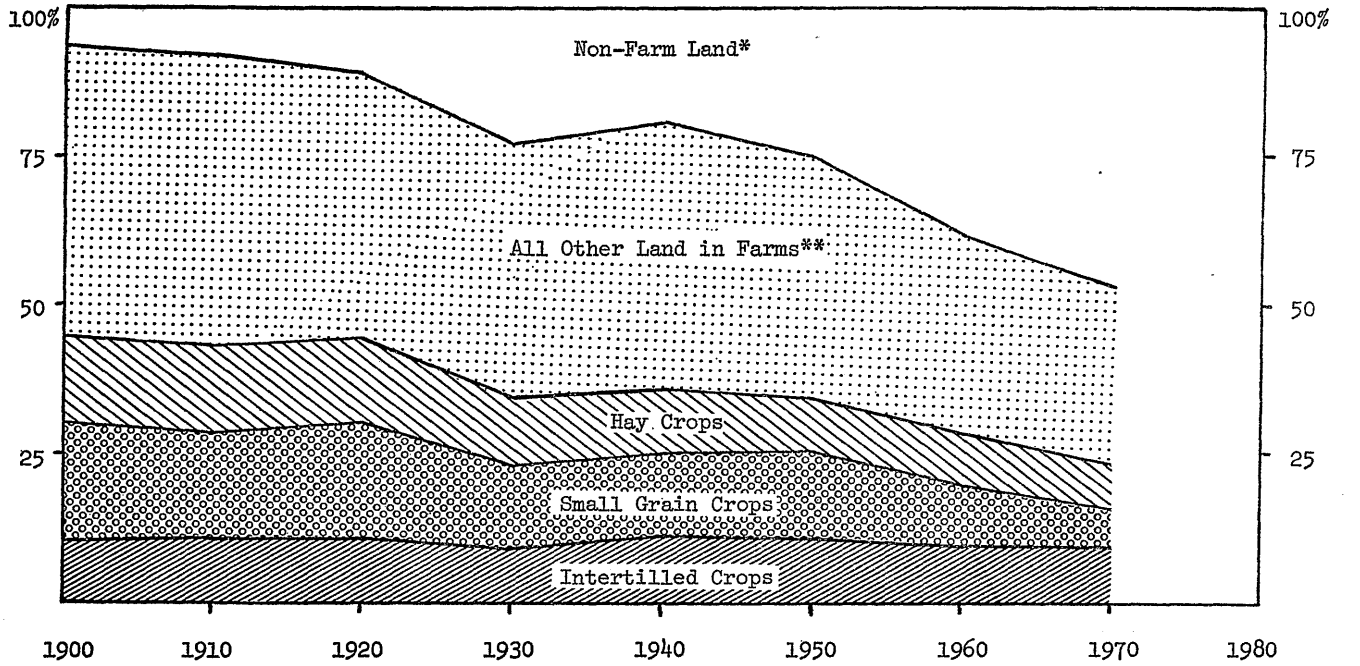
- A decline in acres in farms of 1,264,813 or 43.7 percent. Only the decade of the 1930's registered an increase in acres in farms.
- An increase in land occupied by Urban and Built-up Uses of 463,017 acres.
- The percent of land in farms in harvested crops declined more than the percent of land in farms. This can be interpreted as indicating that a large proportion of the land lost to Urban and Built-up Uses had been cropland.
- The cropping system shifted from predominantly small grain (43 percent), hay crops (31.4 percent), and intertilled crops (22.3 percent) in 1900 to predominantly intertilled crops (40.8 percent), hay crops (32.5 percent), and small grain (25.7 percent) in 1970. Fruit and berries accounted for 3.3 percent in 1900 and for 1.0 percent in 1970.
- Intensive crops (potatoes, vegetables for sale, tobacco, and fruit), a major factor in the area as late as 1940, declined from 90,132 acres in 1900 to 73,916 in 1940 and to 20,319 in 1970.
- A less rapid increase in the acres of land per farm than most subareas. However, the number of farms with 260 acres or more approximately doubled, while those under 100 acres declined from 21,822 to 6,906.
- The proportion of the land in farms operated by farmers who owned no land declined from 32.9 percent to 8.7 percent and part owner, part renter operated land increased correspondingly. The proportion operated by farmers who own all the land farmed remained practically unchanged.
- The density of roughage and pasture-consuming livestock per 100 acres in farms, exclusive of horses and mules, registered a significant increase over the 70-year period. In 1970, only beef cow numbers were larger than at any previous census period analyzed.
- Total population density per square mile increased more rapidly during the first two decades due to the rapid growth of the rubber industry in the Akron area, and at a somewhat slower rate since 1920.

Some General Observations

Further declines in both land in farms and in the acreage of crops harvested can be expected to occur for at least another decade. However, it will be at a slower rate in spite of continuing increases in land occupied by Urban and Built-up Uses. Some of the land, perhaps a majority of that needed for the continuing increase of Urban and Built-up Uses, will be drawn from the approximately 1 million acres of non-urban, non-farm land. Farm commodity prices, more favorable to agriculture than in recent decades, will slow down the movement of land out of farming and possibly result in some of the non-urban, non-farm land being brought back into farming.

Part-time farming, because of the close proximity of a wide variety of non-farm employment opportunities and the tradition and possibility for an increase in intensive crops, will continue to slow down the rate of growth in the size of farm measured in land area.

Land Use in Subarea 8 by Census Periods, 1900-1970.



*Includes Urban and Built-up Uses, scattered non-farm rural residences, brush, forest, and wasteland outside farms.
**Includes cropland which is idle, fallow, and failed; cropland used only for pasture; non-cropland, non-woodland pasture; woodland; and land occupied by farmsteads, farm roads, ponds, and wasteland.

TABLE 54.—Total Land Area and Acreage by Different Use Categories, Ohio Subarea 8, by Census Periods, 1900-1970.

Census Period	Total Land Area	Total Land Outside Farms	Land in Farms						
			Total in Farms	Cropland				Woodland Pastured & Not Pastured	All Other Land in Farms[2]
				Cropland Total[1]	Harvested	Idle, Fallow and Failed	Pastured Only[1]		
1900	3,065,600	210,277	2,855,323	NA	1,425,648	NA	NA	NA	NA
1910	3,065,600	248,284	2,817,316	NA	1,366,254	NA	NA	399,599	NA
1920	3,065,600	354,962	2,710,638	NA	1,397,722	NA	NA	406,716	NA
1930	3,065,600	703,783	2,361,817	1,316,421	1,084,752	179,404	52,265	346,197	NA
1940	3,044,480	592,338	2,452,142	1,372,955	1,127,227	160,513	85,215	280,571	NA
1950	3,044,480	769,681	2,274,799	1,381,572	1,066,211	160,287	155,074	368,871[3]	524.356
1960	3,044,480	1,182,563	1,861,917	1,157,489	877,396	160,860	119,233	280,273	424,155
1970	3,040,492	1,431,982	1,608,510	1,110,097	728,944	197,229	183,924	237,149	261,264

[1]Total Cropland and Cropland Used Only for Pasture were not reported in censuses prior to 1950. In 1930 and 1940, the census reported an acreage of Plowable Pasture, defined as the land used only for pasture which could have been used for crops without clearing and draining. As interpreted by most farmers, this included their open (brush and tree-free) permanent pasture, as well as their cropland used only for pasture. Consequently, it could not be added to the acreage of crops harvested and the idle, fallow, and failed acres to obtain a Total Cropland acreage. In 1950, the Bureau of the Census shifted from the classification of Plowable Pasture to Cropland Used Only for Pasture, and obtained an acreage figure which, although it probably still contained some permanent pasture land, was considered a sufficiently reliable reflection of cropland to permit the reporting of a Total Cropland acreage.
[2]Non-crop, non-woodland pasture and land in house and barn lots, lanes, roads, ditches, ponds, and wasteland.
[3]No definition was given farm operators or census enumerators in 1950, which may explain this improbable increase.

TABLE 55.—Acreage of Principal Crops Harvested by Types of Crops, Ohio Subarea 8, by Census Periods, 1900-1970.

	1900	1910	1920	1930	1940	1950	1960	1970
Row or Intertilled Crops								
Corn, All Purposes	272,831	273,524	292,200	242,360	286,459	281,100	250,434	245,213
Soybeans	NA	NA	NA	2,232	13,270	20,312	23,197	39,322
Potatoes, Irish & Sweet	33,018	50,033	25,104	24,102	26,534	7,582	5,571	5,785
Vegetables for Sale	9,434	9,961	6,574	9,907	11,041	11,795	9,030	7,520
Tobacco	590	337	271	NA	NA	NA	NA	NA
Sugarbeets	NA	NA	NA	NA	NA	NA	NA	NA
Popcorn	98	NA	NA	74	416	459	182	240
Total	315,971	333,855	324,149	278,675	337,720	321,248	288,414	298,080
Small Grain								
Wheat	370,304	291,588	362,339	215,211	211,695	244,586	141,950	83,281
Oats	233,832	249,359	221,265	183,001	184,985	189,043	144,577	
Barley	876	356	1,966	1,214	894	1,859	9,226	104,645
Rye	1,590	4,653	10,284	6,544	9,199	1,821	2,109	
Mixed & Other Grains	1,087	2,072	2,933	7,066	4,803	3,820	952	
Total	607,689	548,028	598,787	413,036	411,576	441,129	298,814	187,926
Hay Crops Harvested	444,598	451,771	436,836	353,505	300,955	280,594	276,057	237,166
Fruit, Nuts, Berries	47,090 b/	32,600 b/	37,950 b/	41,094	36,341	22,515	11,918	7,014
Total Crops Harvested c/	1,415,348	1,366,254	1,397,722	1,086,310	1,086,592	1,065,486	875,203	730,186

[a]Source: Crop Reporting Service.
[b]Derived by converting number of trees and vines to acres.
[c]See section on Discrepancies, page 5.

TABLE 56.—Total Number of Farms and Number by Size Groups, Ohio Subarea 8, by Census Periods, 1900-1970.

	1900	1910	1920	1930	1940	1950	1960	1970
Total Number of Farms	33,313	33,990	31,849	26,867	31,717	27,293	17,822	12,905
Average Acres Per Farm	85.7	82.9	85.1	87.9	77.3	83.3	104.5	124.6
Number of Farms:								
Under 10 Acres	1,950	2,876	2,205	1,414	4,118	3,298	1,095	569
10 - 49 Acres	8,388	8,279	7,530	6,035	8,145	7,267	4,086	2,444
50 - 99 Acres	11,484	11,372	11,251	9,858	9,855	7,900	5,288	3,893
100 - 179 Acres	9,092	9,227	8,904	7,784	7,614	6,387	4,840	3,526
180 - 259 Acres	1,772	1,700	1,478	1,336	1,402	1,600	1,514	1,302
260 - 499 Acres	576	499	443	409	538	772	858	957
500 Acres or More	51	37	38	41	45	69	141	214

TABLE 57.—Acreage of Land Operated Under Different Tenure Systems, Ohio Subarea 8, by Census Periods, 1900-1970.

Census Period	Total Acreage in Farms		Full Owners		Part Owners		Tenant Operators		Manager Operated	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
1900 a/	2,855,323		N/A		N/A		N/A		N/A	
1910 a/	2,817,316		N/A		N/A		N/A		N/A	
1920	2,710,638	100	1,545,582	57.0	205,012	7.6	893,431	32.9	66,613	2.5
1930	2.361,817	100	1,477,394	62.6	233,638	9.9	584,926	24.7	65,859	2.8
1940	2,452,142	100	1,518,436	61.9	271,505	11.1	620,288	25.3	41,913	1.7
1950	2,274,799	100	1,445,195	63.5	453,869	20.0	340,475	15.0	35,260	1.5
1960	1,861,917	100	1,076,857	57.8	528,706	28.4	228,563	12.3	27,791	1.5
1970	1,608,510	100	926,475	57.6	541,556	33.7	140,579	8.7	N/A	

[a]Available for total state only in 1900 and 1910 census reports.

TABLE 58.—Number of Horses and Mules, Dairy Cows, Beef Cows, and Sheep on Farms, Ohio Subarea 8, by Census Periods, 1900-1970.

Census Period	Number of Animals				Number of Animal Units[3]			
					Including horses and mules		Excluding horses and mules	
	Horses and Mules (all ages)[1]	Dairy Cows	Beef Cows	Sheep (One year old & over)	Total[2]	Per 100 Acres in Farms	Total	Per 100 Acres in Farms
1900	107,579	128,818	10,625	306,280	297,520	10.4	200,699	7.0
1910	111,937	143,177	18,236	262,751	314,706	11.2	213,963	7.6
1920	101,867	145,523	9,342	142,835	275,112	10.2	183,432	6.8
1930	62,614	126,368	2,907	130,591	211,746	9.0	155,393	6.6
1940	60,286	151,844	4,194	112,566	232,808	9.5	178,551	7.3
1950	24,921	133,586	11,153	52,615	177,691	7.8	155,262	6.8
1960	18,390	121,034	21,263	51,626	169,173	9.1	152,622	8.2
1970	18,654	100,586	27,546	35,196[4]	151,960	9.5	135,171	8.4

[1]Horse and mule numbers are the total of all ages except in 1940, which only provided the number over 3 months of age. In 1900 and 1910, the numbers were provided by three age groups. Later census reports provided no breakdown by age groups. Consequently, to provide the most nearly comparable series, the total number of all ages was used except for 1940. To convert total horse and mule numbers to animal units, a conversion factor of 0.9 was used to adjust for the lower feed consumption of the young animals.

[2]In addition to the horses, mules, and dairy cows on farms in 1900, there were 194,737 horses and mules and 50,393 dairy cows in urban and non-farm areas of the state; in 1910, 194,881 horses and mules and 47,054 dairy cows; and in 1920, 95,206 horses and mules and 46,579 dairy cows. Since 1920, animals in urban and non-farm areas decreased rapidly and numbers were not obtained thereafter by the Bureau of the Census. Horses, mules, and dairy cows not on farms were not included in the above analysis.

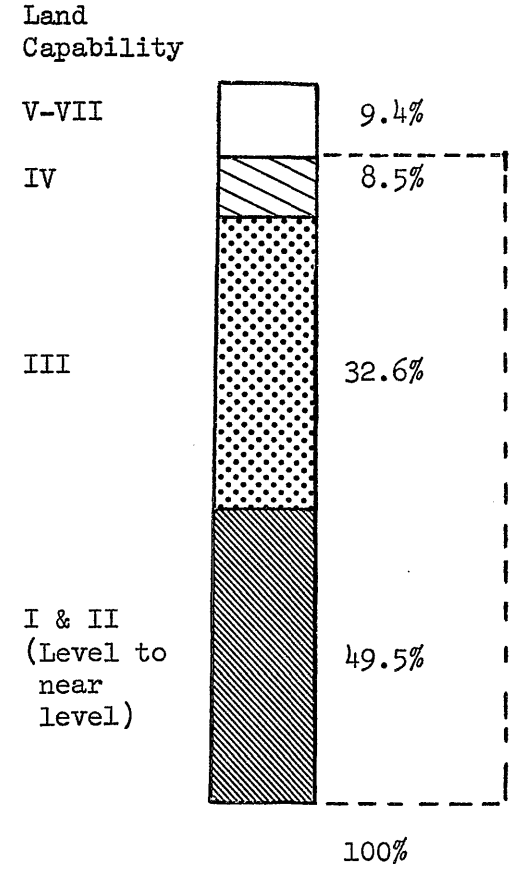
[3]Animal units (A.U.'s) were computed as follows: one horse or mule (all ages) = 0.9 A.U., one dairy cow = 1.0 A.U., one beef cow = 1.0 A.U., and five mature sheep = 1.0 A.U.

[4]The 1970 census only reported total sheep and lambs. Sheep numbers (1 year old and older) were estimated by assuming the same ratio of sheep 1 year old or over to lambs under 1 year as reported in the 1960 census.

TABLE 59.—Farm, Non-Farm, and Total Population, Ohio Subarea 8, by Census Periods, 1900-1970.

Census Period	Farm Population		Non-Farm Population		Total Population	
	Total	Per Sq. Mile	Total	Per Sq. Mile	Total	Per Sq. Mile
1900	NA	--	NA	--	479,244	100.9
1910	NA	--	NA	--	604,524	127.2
1920	NA	--	NA	--	933,176	196.4
1930	125,550	26.4	991,869	208.8	1,117,419	235.2
1940	145,757	30.7	1,010,635	212.7	1,156,392	243.4
1950	121,651	25.6	1,234,316	259.8	1,355,967	285.4
1960	69,307	14.6	1,602,824	337.4	1,672,131	352.0
1970	53,776	11.3	1,775,571	373.7	1,829,347	385.1

Land Capability, Subarea 8



9.4% Suitable for permanent grazing and/or forest, generally not suitable for cultivation.

90.6% Suitable for cropping with increasing degrees of erosion control practices and management problems in moving from I to IV.

100.0% See appendix for land capability characteristics and use restrictions.

SUBAREA 9
SOUTHEASTERN UNGLACIATED COUNTIES (NORTHERN GROUP)

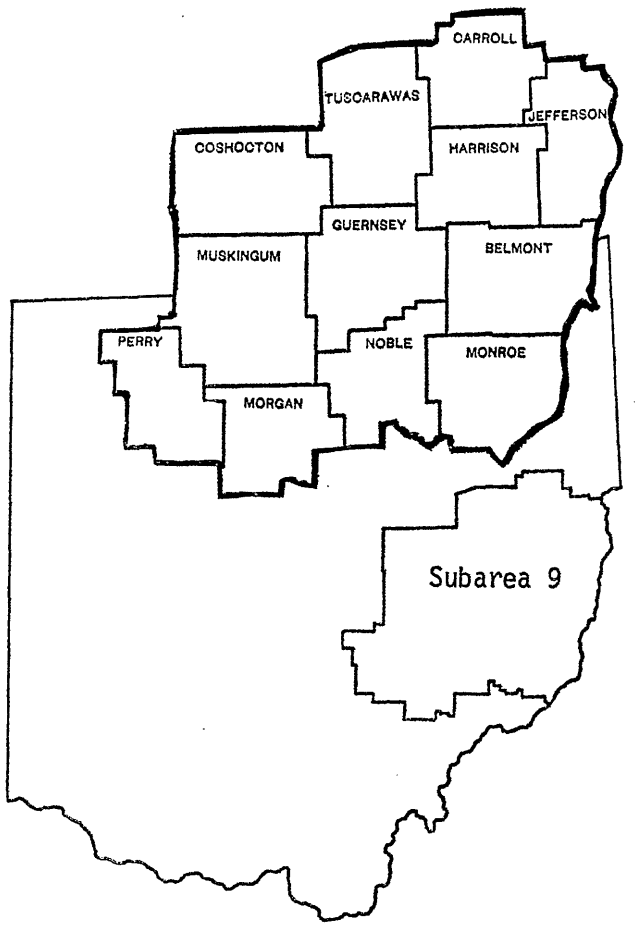
This subarea consists of 12 counties in the central section of eastern Ohio. These counties are a part of the Appalachian Highlands and are either predominantly or totally unglaciated. The soils are residual in origin, largely derived from sandstone and shale, and are deficient in lime. Only a relatively small acreage of soil is of limestone origin.

Except for a limited amount of river and narrow stream valley land, the topography ranges from hilly to rough. The CNIC inventory classified only 63.5 percent of the land as suitable for crop production as compared to 84.0 for the total state. Of this, 11.7 percent was listed as capability I and II land (total state 52.5 percent) and 51.8 percent as capability III and IV (total state 31.5 percent), with the latter requiring special soil and crop management practices if erosion is to be controlled. Land capability classes V, VI, and VII, which should only be used for permanent sod crops and forest, make up the remaining 36.5 percent (total state 16.0 percent).

The small and irregular shaped areas suitable for cropping are generally inconvenient and costly to use for crop production. Fencing is a major problem when livestock is grazed, especially if an effort is made to exclude them from wooded areas or if cropped areas are interspersed.

The area contains a number of mineral resources. The most significant are coal, gas, oil, ceramic clays, and salt. All were exploited early, with the oil and gas being most nearly depleted. However, large coal deposits are still present. Large areas have already been strip mined and much more is within the reach of modern surface and deep mining techniques.

The area is distinctly rural, with no large cities in or adjacent to it. Prior to 1940, the roads in and through the area were an isolating factor. Since then

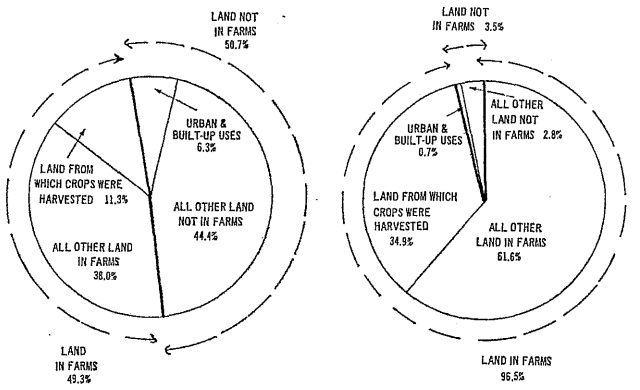


the road system has been greatly improved, resulting in the rapid development and use of the recreation potential of the area.

In This Area in 1970:

- 45.4 percent of the total land area was forest (farm and non-farm) according to CNIC's 1971 report.

Land Use in Subarea 9, 1970 (left) and 1900 (right).



Land Uses in Subarea 9

Categories of Use	1970 Acres	1970 Percent	1900 Acres	1900 Percent
Land in Farms				
In Crops Harvested	410,039	11.3	1,265,780	34.9
In All Other Uses	1,385,834	38.0	2,234,113	61.6
Total	1,795,873	49.3	3,499,893	96.5
Land Not in Farms				
Urban and Built-up Uses				
Urban and Built-up Areas	195,723		NA	
Federal Non-cropland	24,969		NA	
Water Areas	10,758		NA	
Total Urban and Built-up Uses	231,450	6.3	25,795	0.7
All Other Land Not in Farms	1,617,130	44.4	101,832	2.8
Total Land Not in Farms	1,848,580	50.7	127,627	3.5
Total Physical Area (Farm and Non-farm)	3,644,453	100.0	3,627,520	100.0

• Only 231,450 acres or 6.4 percent of the total physical area was occupied by Urban and Built-up Uses. Of this acreage, 24,969 was Federal non-cropland, practically all of which was forest, and 10,758 was in small water areas, most of which were flood control reservoirs. Land occupied by cities, villages, built-up areas of more than 10 acres each, industrial sites, railroads, roads, cemeteries, airports, golf courses, shooting ranges, and institutional and public administration sites totaled 195,723 acres or 5.4 percent of the total land area in 1967 according to the CNIC inventory. Only subarea 10 had a smaller percentage of land in this type of use.

• 49.3 percent of the total land area was in farms.

• Crops were harvested on 11.2 percent of the total land area or 22.8 percent of the land in farms. Only subarea 10 to the south had a smaller percentage of land in harvested crops.

• 27.1 percent of the acreage of crops harvested was intertilled, 14.5 percent small grain, and 57.4 percent crops harvested for hay. Less than 1.0 percent of the harvested acreage was fruit and berries.

• Hay, with 235,088 acres, was the most important single crop in terms of acreage harvested, followed by corn with 104,349 acres.

• The average acreage of land per farm was 164.5, third highest in the state. Approximately one farm out of each six contained 260 acres or more.

• 66.8 percent of land in farms in the area was operated by farmers who owned all of the land they operated and 5.7 percent was operated by farmers who owned none of the land they operated. This was the second highest percentage of owner operated land among the 11 subareas and the second lowest percentage of tenant operated land. Only subarea 10 to the south had higher and lower percentages.

• The number of animal units of horses, dairy cows, beef cows, and sheep per 100 acres of land in farms was 7.8, third highest in the state.

• Farm and non-farm population per square mile was 5.4 and 83.8, respectively. Only subarea 10 to the south had lower densities in each category.

Data on Land Use and Selected Factors Show:

• A decrease in land in farms from 3.5 million acres or 96.5 percent of the total land area in 1900 to 1.8 million or 49.3 percent in 1970. Only subareas 7 and 10 experienced sharper declines.

• A decrease in crops harvested in the area from 1,265,780 to 410,039, a decline of 67.6 percent in 70 years.

• The most stable crop in the area in terms of acreage harvest was hay. Wheat, a very important crop in the area during the period 1900-1920, has disappeared from most farms. The same is true for potatoes, vegetables grown for sale, and tobacco, all of which were fairly important in 1900.

• Fruit and berry acreage was a major factor in the area in 1900 with 65,210 acres or 1.8 percent of the total land area. It had declined to 3,957 acres or 0.1 percent in 1970.

• During the decade of the 1930's, the cropping pattern started to shift from one of soil depletion to one of soil conservation. During the first 3 decades, the ratio of hay crops harvested to intertilled and small grain crops was 1.0 of the former to 1.5 of the latter. By 1970, the ratio had shifted to 1.0 of the former to 0.7 of the latter.

• The drop in number of farms was more rapid than the average rate for the state. In 1900, 13 percent of the farms were in this area, while in 1970 only 9.8 percent were. The only size group with significantly more farms in 1970 than in 1900 was the 500 acres and more group.

• One of the most significant changes in the area has been in the type of livestock. During the first decade of the century, sheep accounted for more than 40 percent of the roughage and pasture-consuming animal units, making it the most important sheep area in the state. During the next decade, mature sheep numbers dropped from 897,161 head to 455,137 and remained at about that level through 1940. Since then sheep numbers declined to 76,056 head in 1970. Although the acreage of land in farms and the number of farms declined significantly between 1900 and 1950, dairy cow numbers remained fairly stable. However, since 1950 their number has dropped from 115,078 to 46,271 and beef cow numbers have increased from 20,103 to 69,426. In 1900 there were 10.7 animal units of horses and mules, dairy cows, beef cows, and sheep per 100 acres of land in farms; in 1970 there were 7.8 animal units.

• The total population in the subarea since 1920 has remained practically unchanged. However, since 1940 when farm population was reported by the census as 23.1 per square mile, it has decreased rapidly and in 1970 was 5.4 per square mile. The decrease in farm population was offset by proportionate increases in non-farm population.

Some General Observations

During the early 1800's this subarea, along with most of the eastern half of Ohio, possessed sufficient economic advantages when it was settled and farms established to enable most of the units to operate at or above the economic margin. This was made possible by the virgin productivity of the soil, the ease of clearing, the adaptability of land to the small units of hand

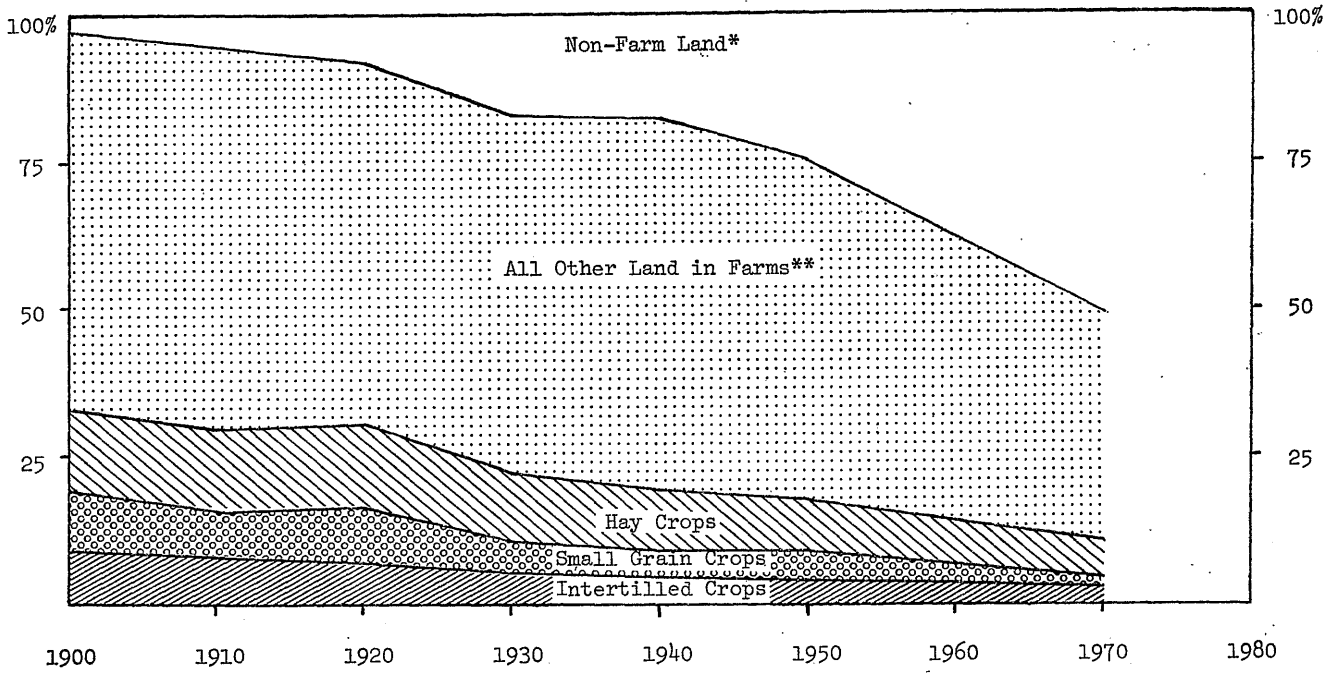
and horsedrawn farm equipment of that time, the self-sufficiency type of farming, and the proximity of the area to the eastern seaboard.

The passage of time brought many changes which proved to be disadvantageous to the agriculture of subarea 9 and much of eastern and southern Ohio. The development of new and larger farm equipment and a commercial type of farming, the exhaustion of soil and other local resources, expansion of non-farm employment opportunities, competition from more productive land to the west, and a demand for an increased standard of living in the area resulted in many farms and some entire farming communities becoming submarginal and eventually moving out of farming.

Small units of farm equipment whose capacity balanced fairly well with individual farm crop acreages are rapidly wearing out, especially those used in the production of corn and small grains, and are not generally replaced because of the high cost per acre of potential use. Only equipment used in the production and harvesting of meadow crops is being replaced on many farms. Because the use of custom operators has not provided an economic solution, the acreages of intertilled and small grain crops have declined rapidly in recent years, while sod crops have increased. Meadows, formerly plowed under every 2 or 3 years and planted to corn followed by small grains and then reseeded to meadow, are no longer plowed but allowed to remain in meadow, with a larger amount of the increased meadow acreage being used as cropland pasture. The extent to which the no-till planter is able to reverse the decline in corn acreage is not clear at the present time since harvesting, drying, and storage still present problems in the area.

Some of these disadvantages continue to prevail and other competing uses such as strip mining have come into existence, especially since 1940. These have resulted in further shrinkage of land in farms and in the number of economically viable farms. In the absence of a distinct shift toward a more favorable long-run economic outlook and a higher return for those products for which the area is adapted, such as grazing types of livestock, the trend out of farms can be expected to continue. However, the apparent narrowing of the gap between the world's demand and supply situation of agricultural commodities with the potential for more favorable cost-price ratios, together with some new technological developments such as the no-till planter and pasture management systems involving year-round grazing of beef cows, can reverse the downward trend in land in farms. A continuation of the recent high per capita consumption of beef and a stronger demand for wool could result in some expansion in land in farms during the next 10 to 15 years. However, the present demands for land in the area for strip mining and by urban family acquisition of places in the country, along with the increasing cost of energy needed to restore the land to a usable condition, will tend to counteract a move toward more of the land being farmed.

Land Use in Subarea 9 by Census Periods, 1900-1970.



*Includes Urban and Built-up Uses, scattered non-farm rural residences, brush, forest, and wasteland outside farms.
**Includes cropland which is idle, fallow, and failed; cropland used only for pasture; non-cropland, non-woodland pasture; woodland; and land occupied by farmsteads, farm roads, ponds, and wasteland.

TABLE 60.—Total Land Area and Acreage by Different Use Categories, Ohio Subarea 9, by Census Periods, 1900-1970.

Census Period	Total Land Area	Total Land Outside Farms	Land in Farms						
			Total in Farms	Cropland				Woodland Pastured & Not Pastured	All Other Land in Farms[2]
				Cropland Total[1]	Harvested	Idle, Fallow and Failed	Pastured Only[1]		
1900	3,627,520	127,627	3,499,893	NA	1,265,780	NA	NA	NA	NA
1910	3,627,520	215,615	3,411,905	NA	1,135,682	NA	NA	472,816	NA
1920	3,627,520	307,469	3,320,051	NA	1,147,936	NA	NA	465,348	NA
1930	3,627,520	629,246	2,998,274	1,026,572	834,970	149,989	41,613	411,083	NA
1940	3,645,440	644,646	3,000,794	997,251	753,200	138,520	105,531	384,655	NA
1950	3,645,440	911,237	2,734,203	1,164,332	686,835	189,492	288,005	462,127[3]	1,107,744
1960	3,645,440	1,422,830	2,267,440	892,137	565,579	143,121	183,437	436,088	939,215
1970	3,644,453	1,848,580	1,795,873	867,708	410,039	145,056	312,613	371,267	556,898

[1]Total Cropland and Cropland Used Only for Pasture were not reported in censuses prior to 1950. In 1930 and 1940, the census reported an acreage of Plowable Pasture, defined as the land used only for pasture which could have been used for crops without clearing and draining. As interpreted by most farmers, this included their open (brush and tree-free) permanent pasture, as well as their cropland used only for pasture. Consequently, it could not be added to the acreage of crops harvested and the idle, fallow, and failed acres to obtain a Total Cropland acreage. In 1950, the Bureau of the Census shifted from the classification of Plowable Pasture to Cropland Used Only for Pasture, and obtained an acreage figure which, although it probably still contained some permanent pasture land, was considered a sufficiently reliable reflection of cropland to permit the reporting of a Total Cropland acreage.
[2]Non-crop, non-woodland pasture and land in house and barn lots, lanes, roads, ditches, ponds, and wasteland.
[3]No definition was given farm operators or census enumerators in 1950, which may explain this improbable increase.

TABLE 61.—Acreage of Principal Crops Harvested by Types of Crops, Ohio Subarea 9, by Census Periods, 1900-1970.

	1900	1910	1920	1930	1940	1950	1960	1970
Row or Intertilled Crops								
Corn, All Purposes	289,936	260,399	254,232	191,690	188,004	172,838	146,883	104,349
Soybeans	NA	NA	NA	4,218	3,824	6,313	2,876	4,864
Potatoes, Irish & Sweet	15,507	17,966	11,304	8,854	5,829	2,979	1,760	1,013
Vegetables for Sale	10,428	10,031	1,841	2,798	2,038	1,581	880	694
Tobacco	2,352	5,668	3,534	1,772	303	58	31	26
Sugarbeets	NA	NA	NA	NA	NA	NA	NA	NA
Popcorn	645	NA	NA	NA	116	85	NA	a/
Total	318,868	294,064	270,911	209,332	200,114	183,854	152,430	110,946
Small Grain								
Wheat	299,031	178,627	256,396	98,381	107,702	119,846	50,814	25,059
Oats	92,373	105,746	121,939	87,020	51,152	50,554	49,806	
Barley	302	208	979	510	429	1,012	5,534	34,394
Rye	1,041	2,926	4,350	2,893	2,236	802	680	
Mixed & Other Grains	1,392	1,929	1,728	2,408	2,600	1,313	470	
Total	394,139	289,436	385,392	191,212	164,119	173,527	107,304	59,453
Hay Crops Harvested	477,929	507,042	457,533	401,882	360,679	318,679	272,049	235,088
Fruit, Nuts, Berries	65,210 b/	45,140 b/	34,100 b/	36,855	19,737	10,316	5,738	3,957
Total Crops Harvested c/	1,256,146	1,135,682	1,147,936	839,281	744,649	686,376	537,521	409,444

[a]Source: Crop Reporting Service.
[b]Derived by converting number of trees and vines to acres.
[c]See section on Discrepancies, page 5.

TABLE 62.—Total Number of Farms and Number by Size Groups, Ohio Subarea 9, by Census Periods, 1900-1970.

	1900	1910	1920	1930	1940	1950	1960	1970
Total Number of Farms	36,096	35,004	32,814	28,710	30,196	23,923	16,295	10,915
Average Acres Per Farm	97.0	97.5	101.2	104.4	99.4	114.3	136.4	164.5
Number of Farms:								
Under 10 Acres	2,093	2,258	1,594	1,400	2,361	1,541	412	290
10 - 49 Acres	8,933	8,135	6,923	5,577	6,352	4,385	2,535	1,217
50 - 99 Acres	10,765	10,324	10,070	8,779	8,741	6,461	4,180	2,434
100 - 179 Acres	10,071	10,164	10,330	9,269	9,073	7,548	5,347	3,628
180 - 259 Acres	2,860	2,803	2,731	2,529	2,493	2,428	2,065	1,687
260 - 499 Acres	1,253	1,220	1,065	1,046	1,063	1,352	1,460	1,282
500 Acres or More	121	100	101	110	113	208	295	377

TABLE 63.—Acreage of Land Operated Under Different Tenure Systems, Ohio Subarea 9, by Census Periods, 1900-1970.

Census Period	Total Acreage in Farms		Full Owners		Part Owners		Tenant Operators		Manager Operated	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
1900 a/	3,499,893		N/A		N/A		N/A		N/A	
1910 a/	3,411,905		N/A		N/A		N/A		N/A	
1920	3,320,051	100	2,335,163	70.3	277,881	8.4	667,424	20.1	39,583	1.2
1930	2,998,274	100	2,188,628	73.0	298,605	10.0	492,024	16.4	19,017	0.6
1940	3,000,794	100	2,153,492	71.8	266,940	8.9	564,585	18.8	15,777	0.5
1950	2,734,203	100	1,916,713	70.1	479,283	17.5	320,715	11.7	17,492	0.7
1960	2,267,440	100	1,477,990	65.2	598,757	26.4	174,634	7.7	16,059	0.7
1970	1,795,873	100	1,198,989	66.8	494,550	27.5	102,334	5.7	N/A	

[a]Available for total state only in 1900 and 1910 census reports.

TABLE 64.—Number of Horses and Mules, Dairy Cows, Beef Cows, and Sheep on Farms, Ohio Subarea 9, by Census Periods, 1900-1970.

Census Period	Number of Animals				Number of Animal Units[3]			
					Including horses and mules		Excluding horses and mules	
	Horses and Mules (all ages)[1]	Dairy Cows	Beef Cows	Sheep (One year old & over)	Total[2]	Per 100 Acres in Farms	Total	Per 100 Acres in Farms
1900	105,015	104,700	14,721	806,169	375,169	10.7	280,655	8.0
1910	98,595	106,755	23,647	897,161	398,570	11.7	309,834	9.1
1920	88,199	97,574	27,526	455,137	295,506	8.9	216,127	6.5
1930	54,881	97,631	6,637	473,843	248,430	8.3	199,037	6.6
1940	51,448	122,923	9,612	402,282	259,294	8.6	212,991	7.1
1950	29,330	115,078	20,103	129,795	187,537	6.9	161,140	5.9
1960	11,123	80,055	54,426	97,252	163,942	7.2	153,931	6.8
1970	10,046	46,271	69,426	76,056[4]	139,949	7.8	130,908	7.3

[1]Horse and mule numbers are the total of all ages except in 1940, which only provided the number over 3 months of age. In 1900 and 1910, the numbers were provided by three age groups. Later census reports provided no breakdown by age groups. Consequently, to provide the most nearly comparable series, the total number of all ages was used except for 1940. To convert total horse and mule numbers to animal units, a conversion factor of 0.9 was used to adjust for the lower feed consumption of the young animals.

[2]In addition to the horses, mules, and dairy cows on farms in 1900, there were 194,737 horses and mules and 50,393 dairy cows in urban and non-farm areas of the state; in 1910, 194,881 horses and mules and 47,054 dairy cows; and in 1920, 95,206 horses and mules and 46,579 dairy cows. Since 1920, animals in urban and non-farm areas decreased rapidly and numbers were not obtained thereafter by the Bureau of the Census. Horses, mules, and dairy cows not on farms were not included in the above analysis.

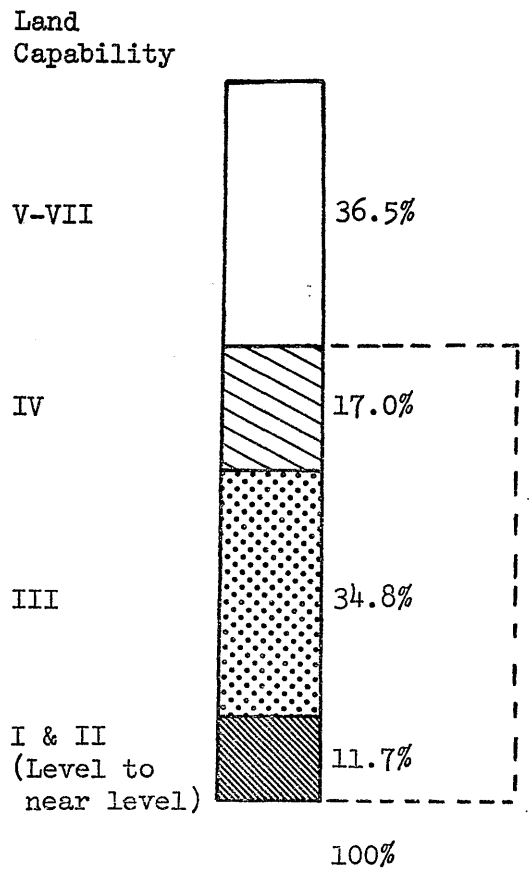
[3]Animal units (A.U.'s) were computed as follows: one horse or mule (all ages) = 0.9 A.U., one dairy cow = 1.0 A.U., one beef cow = 1.0 A.U., and five mature sheep = 1.0 A.U.

[4]The 1970 census only reported total sheep and lambs. Sheep numbers (1 year old and older) were estimated by assuming the same ratio of sheep 1 year old or over to lambs under 1 year as reported in the 1960 census.

TABLE 65.—Farm, Non-Farm, and Total Population, Ohio Subarea 9, by Census Periods, 1900-1970.

Census Period	Farm Population		Non-Farm Population		Total Population	
	Total	Per Sq. Mile	Total	Per Sq. Mile	Total	Per Sq. Mile
1900	NA	--	NA	--	409,470	71.9
1910	NA	--	NA	--	458,814	80.6
1920	NA	--	NA	--	492,007	86.4
1930	123,765	21.7	378,630	66.5	502,395	88.2
1940	131,681	23.1	386,393	67.9	518,074	91.0
1950	99,234	17.4	406,489	71.4	505,723	88.8
1960	48,715	8.6	466,814	82.0	515,529	90.5
1970	30,665	5.4	477,201	83.8	507,866	89.2

Land Capability, Subarea 9



36.5 %	Suitable for permanent grazing and/or forest, generally not suitable for cultivation.
63.5 %	Suitable for cropping with increasing degrees of erosion control practices and management problems in moving from I to IV.
100.0 %	See appendix for land capability characteristics and use restrictions.

SUBAREA 10
SOUTHEASTERN UNGLACIATED COUNTIES (SOUTHERN GROUP)

This subarea consists of 10 counties in the southeastern part of Ohio. It was one of the two earliest centers of settlement in Ohio. It includes the 1788 "Ohio Company Purchase" of 964,285 acres to be resold in small tracts to potential settlers. Marietta, at the mouth of the Muskingum River, became the site of the first Federal land office to be opened in the Northwest Territory.

This subarea, along with subarea 9 to the north, is a part of the unglaciated Appalachian Highlands. The soils are residual in origin and except for some relatively small areas of limestone are derived from sandstone and shale deficient in lime. Topographically the area is hilly to rough and in places broken. Most of the valleys are narrow and many are subject to flash flooding.

Only slightly more than half of the total land area was identified by CNIC as suitable for crop production and only if fairly intensive erosion control practices are employed. The committee invoiced 46.4 percent of the land in capability classes V, VI, and VII, all of which should be maintained in some form of permanent vegetative growth.

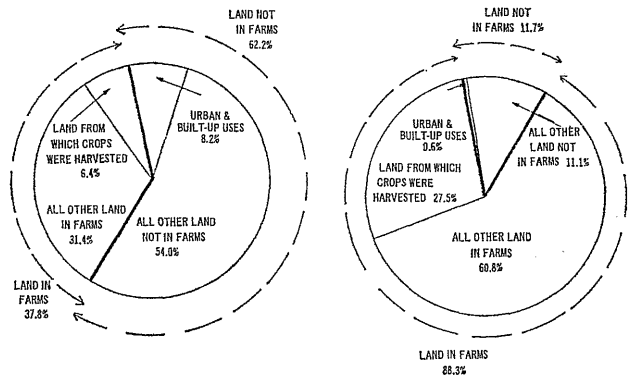
The land considered suitable for cropping is made up of many small, irregular shaped, and scattered areas or fields which are frequently inconvenient and costly to use for crop production. Fencing is a major problem when livestock are grazed, especially if an effort is made to exclude them from wooded areas or if cropped areas are interspersed.

Some advantage has been taken of the early frost free date existing along parts of the southern fringe of the area for fruit production and to engage in vegetable growing for the early market.

The area contains a number of mineral resources. The most significant are coal, gas, oil, ceramic clays, salt, and low grade iron ore. All were exploited early, including the development of several iron furnaces in the middle 1800's. Iron, oil, and gas are the most nearly depleted. Large coal deposits are still present and sizeable areas have already been strip mined; much more is within the reach of modern surface and deep mining techniques.

The area is distinctly rural, with no large cities in or adjacent to it. Since 1940 when the roads in and through the area were an isolating factor, the road systems have been greatly improved, resulting in the rapid development and use of the recreation potential of the area.

Land Use in Subarea 10, 1970 (left) and 1900 (right).



Land Uses in Subarea 10

Categories of Use	1970 Acres	1970 Percent	1900 Acres	1900 Percent
Land in Farms				
In Crops Harvested	197,950	6.4	826,923	27.5
In All Other Uses	964,401	31.4	1,827,244	60.8
Total	1,162,351	37.8	2,654,167	88.3
Land Not in Farms				
Urban and Built-up Uses				
Urban and Built-up Areas	146,328		NA	
Federal Non-cropland	96,919		NA	
Water Areas	9,613		NA	
Total Urban and Built-up Uses	252,860	8.2	19,225	0.6
All Other Land Not in Farms	1,658,426	54.0	333,968	11.1
Total Land Not in Farms	1,911,286	62.2	353,193	11.7
Total Physical Area (Farm and Non-farm)	3,073,637	100.0	3,007,360	100.0

In This Area in 1970:

- 59.4 percent of the total land area was forest (farm and non-farm) according to CNIC's 1971 report. Included in this is the major part of the state owned forest land. In addition, there were 96,919 acres of Federal non-cropland, most of which was federally owned forest land.
- 252,860 acres or 8.2 percent of the total physical area was occupied by Urban and Built-up Uses. Of this acreage, 96,919 were Federal non-cropland, practically all forest, and 9,613 were in small water areas, some of which were flood control reservoirs. Land occupied by cities, villages, built-up areas of more than 10 acres each, industrial sites, railroads, roads, cemeteries, airports, golf courses, shooting ranges, and institutional and administrative sites totaled 146,328 acres or 4.8 percent of the total land area in 1967, according to the CNIC inventory. This was the smallest percentage of land in this type of use among the 11 subareas.
- 37.8 percent of the total land area was in farms. Only subarea 7 in the extreme northeast had a lower percentage.
- Crops were harvested on 6.4 percent of the total land area or 17.0 percent of the land in farms. This was the smallest percentage of land in harvested crops of any of the subareas.
- 52.9 percent of the crops were harvested for hay, 37.7 percent were intertilled, 8.0 percent small grains, and 1.4 percent fruit and berries. The acreage of intensive crops (potatoes, vegetables for sale, tobacco and fruit) accounted for less than 8,000 acres or 3.9 percent of total crops harvested.
- Farm size averaged 157 acres, slightly higher than the average for the entire state.
- Three-fourths of the land in farms was operated by farmers who owned all of the land farmed. Only 4 percent of the land farmed was by farmers who owned none of that farmed. This was the highest percent owner operated and lowest percent tenant operated in the state.
- The most important roughage and pasture-consuming livestock in terms of animal units was the beef cow.
- Farm and non-farm population numbers per square mile, with 3.9 and 73.2 respectively, were the lowest of the 11 subareas.

Data on Land Use and Selected Factors Show:

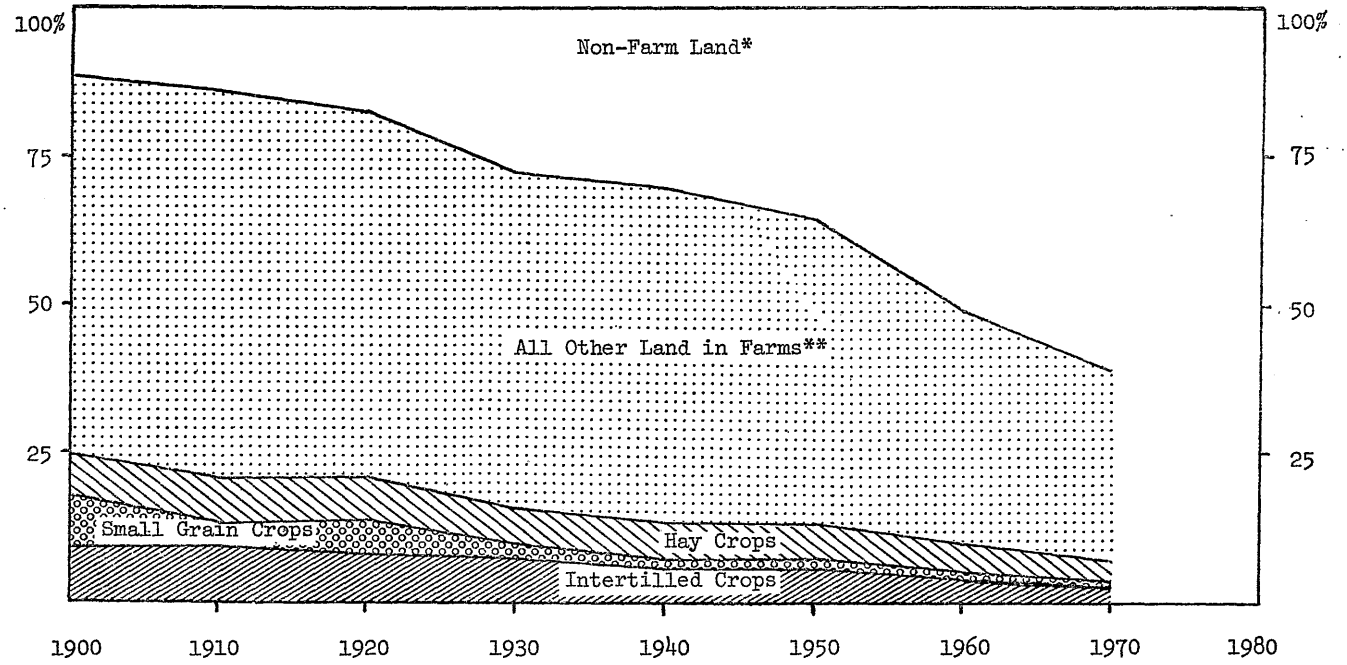
- A decrease in land in farms of 56.2 percent, the second largest percentage drop of the 11 subareas. Every decade, including the depression decade of the 1930's, registered declines.
- A decrease in crops harvested from 826,923 acres in 1900 to 197,950 in 1970, or a decline of 76 percent in 70 years.
- Although the acreage of each of the four types of crops dropped significantly, intertilled, small grain, and fruit crops declined more sharply than crops harvested for hay, with the resulting cropping pattern in 1970 being significantly more soil conserving than that prevailing at the start of the period.
- Intensive crops (potatoes, vegetables for sale, tobacco, and fruit) were extremely important in the area during the first 3 decades, with approximately 12 percent of the crops harvested of these types. However, the acreage of these intensive crops dropped from 12 percent of crops harvested in 1930 to 7.8 percent in 1940 and to 3.9 percent in 1970.
- Farm numbers decreased gradually during the first 3 decades, increased sharply during the depression years of the 1930's, and then dropped rapidly through the 1970's, with the 1970 census reporting only 26 percent as many farms as in 1900.
- A fairly stable farm size over the first 50 years, a situation made possible by a decline in land in farms at about the same rate as the number of farms declined. However, since 1950 acreage per farm increased rapidly as a result of the large drop in the number with less than 260 acres per unit.
- The percent of the farm acreage operated by farmers who owned no land, although never an important tenure arrangement, dropped to 4 percent in 1970 from 17.1 percent in 1920.
- The density of roughage and pasture-consuming livestock, exclusive of horses and mules, increased from 4.1 animal units per 100 acres of land in farms in 1950 to 5.7 in 1970. Prior to 1950, only minor changes occurred in density. More significant than changes in density have been the shifts in type of livestock in the area. In the early part of the period, sheep numbers were fairly stable and accounted for a substantial block of the roughage and pasture-consuming animals, but since 1910 their numbers declined from 219,933 head to 14,094 in 1970. During the period 1900 through 1950, dairy cows were predominant, but between 1950 and 1970 their numbers declined rapidly. On the other hand, beef cows, previously a relatively minor type in the area, increased rapidly to become the predominant type in 1970.
- The total population density has experienced only minor increases over the period. However, farm population dropped from 23.8 per square mile in 1940 to 3.9 in 1970 and non-farm population increased from 48.7 to 73.2 in the same period.

Some General Observations

In the absence of any significant long-run changes in the profitability of farming in relation to non-farm opportunities in the area from those of the recent past, farm numbers, land in farms, and the

acreage of crops harvested will continue to decline through this decade and perhaps somewhat longer. These trends, although at a much slower rate, seem probable in spite of major adjustments which have already occurred to realign agricultural uses with the land capabilities of the area. Urban and Built-up Uses will continue to absorb small but negligible amounts of crop and pasture land. Strip mining, already a significant factor in land use in this area, also will increase. It will withdraw some land from farm uses, but much of the land stripped in the future will be land which has already moved out of farming and

Land Use in Subarea 10 by Census Periods, 1900-1970.



*Includes Urban and Built-up Uses, scattered non-farm rural residences, brush, forest, and wasteland outside farms.
**Includes cropland which is idle, fallow, and failed; cropland used only for pasture; non-cropland, non-woodland pasture; woodland; and land occupied by farmsteads, farm roads, ponds, and wasteland.

TABLE 66.—Total Land Area and Acreage by Different Use Categories, Ohio Subarea 10, by Census Periods, 1900-1970.

Census Period	Total Land Area	Total Land Outside Farms	Land in Farms						
			Total in Farms	Cropland				Woodland Pastured & Not Pastured	All Other Land in Farms[2]
				Cropland Total[1]	Harvested	Idle, Fallow and Failed	Pastured Only[1]		
1900	3,007,360	353,193	2,654,167	NA	826,923	NA	NA	NA	NA
1910	3,007,360	421,209	2,586,151	NA	681,659	NA	NA	598,250	NA
1920	3,007,360	530,934	2,475,426	NA	667,804	NA	NA	598,021	NA
1930	3,007,360	846,246	2,161,114	635,683	496,000	126,619	13,064	540,740	NA
1940	3,075,840	947,697	2,128,143	595,268	425,033	113,435	56,800	458,950	NA
1950	3,075,840	1,104,727	1,971,113	690,851	405,235	125,997	159,619	598,512[3]	690,550
1960	3,075,840	1,594,358	1,481,482	486,533	301,463	85,569	99,501	489,355	505,594
1970	3,073,637	1,911,286	1,162,351	483,135	197,950	95,947	189,238	365,657	313,559

[1]Total Cropland and Cropland Used Only for Pasture were not reported in censuses prior to 1950. In 1930 and 1940, the census reported an acreage of Plowable Pasture, defined as the land used only for pasture which could have been used for crops without clearing and draining. As interpreted by most farmers, this included their open (brush and tree-free) permanent pasture, as well as their cropland used only for pasture. Consequently, it could not be added to the acreage of crops harvested and the idle, fallow, and failed acres to obtain a Total Cropland acreage. In 1950, the Bureau of the Census shifted from the classification of Plowable Pasture to Cropland Used Only for Pasture, and obtained an acreage figure which, although it probably still contained some permanent pasture land, was considered a sufficiently reliable reflection of cropland to permit the reporting of a Total Cropland acreage.
[2]Non-crop, non-woodland pasture and land in house and barn lots, lanes, roads, ditches, ponds, and wasteland.
[3]No definition was given farm operators or census enumerators in 1950, which may explain this improbable increase.

currently is idle except as natural reforestation is considered a type of land use.

Much of the change in farm size has already taken place. Some further consolidation of farms with between 100 and 259 acres probably will occur. However, part-time farming well adapted to the conditions in this area will slow down farm consolidation. Beef cows, favored by part-time farming and the po-

TABLE 67.—Acreage of Principal Crops Harvested by Types of Crops, Ohio Subarea 10, by Census Periods, 1900-1970.

	1900	1910	1920	1930	1940	1950	1960	1970
Row or Intertilled Crops								
Corn, All Purposes	262,617	244,154	228,214	169,222	149,408	136,968	116,373	60,760
Soybeans	NA	NA	NA	12,380	4,051	12,866	3,314	9,021
Potatoes, Irish & Sweet	12,980	19,839	11,097	9,668	6,151	2,724	1,899	517
Vegetables for Sale	11,772	11,963	3,377	6,285	4,523	4,554	4,344	2,967
Tobacco	2,009	6,433	4,623	4,215	2,157	2,229	1,734	1,368
Sugarbeets	NA	NA	NA	NA	NA	NA	NA	NA a/
Popcorn	1,757	NA	NA	10	73	57	322	440 a/
Total	291,135	282,389	247,311	201,780	166,363	159,398	127,986	75,073
Small Grain								
Wheat	233,775	104,183	135,735	38,802	50,911	54,789	13,480	9,512
Oats	17,629	21,301	38,421	30,978	6,963	9,959	13,825	6,412
Barley	50	57	125	173	229	1,015	1,994	
Rye	340	912	1,225	667	518	214	356	
Mixed & Other Grains	823	4,011	5,985	5,973	2,053	1,733	231	
Total	252,617	130,464	181,491	76,593	60,674	67,710	29,886	15,924
Hay Crops Harvested	203,496	220,736	201,422	186,876	168,745	166,329	129,040	105,522
Fruit, Nuts, Berries	69,440 b/	48,070 b/	37,580 b/	40,682	19,549	11,158	4,123	2,836
Total Crops Harvested c/	816,688	681,659	667,804	505,931	415,331	404,595	291,035	199,355

[a]Source: Crop Reporting Service.
[b]Derived by converting number of trees and vines to acres.
[c]See section on Discrepancies, page 5.

TABLE 68.—Total Number of Farms and Number by Size Groups, Ohio Subarea 10, by Census Periods, 1900-1970.

	1900	1910	1920	1930	1940	1950	1960	1970
Total Number of Farms	28,461	27,188	25,040	20,830	24,008	19,053	11,764	7,397
Average Acres Per Farm	93.3	95.1	98.9	103.8	88.6	103.5	125.9	157.1
Number of Farms:								
Under 10 Acres	1,684	1,847	1,405	1,027	2,523	1,328	416	230
10 - 49 Acres	8,922	7,943	6,642	5,016	6,899	4,744	2,417	1,049
50 - 99 Acres	8,535	8,107	7,610	6,367	6,570	5,411	3,259	1,813
100 - 179 Acres	6,224	6,199	6,429	5,633	5,403	4,847	3,286	2,214
180 - 259 Acres	1,835	1,842	1,812	1,728	1,635	1,607	1,292	1,033
260 - 499 Acres	1,019	1,033	964	898	818	925	880	808
500 Acres or More	242	217	178	161	160	191	214	250

tential for nearly year-round grazing, will continue to increase. Dairy cows will decrease but at a slower rate than in the 1950-1970 period.

Population per square mile, the lowest of any of the subareas, will continue the slow rate of increase of the recent decades.

Inasmuch as the quality of the land in the area is near the economic margin for farming, any improvement in the long-run outlook for net farm income can reverse the trend of the past several decades, with beef cows, fruit, and vegetables for sale most likely to be featured in any resurgence of agriculture in the area. See also Some General Observations for subarea 9, page 72.

TABLE 69.—Acreage of Land Operated Under Different Tenure Systems, Ohio Subarea 10, by Census Periods, 1900-1970.

Census Period	Total Acreage in Farms		Full Owners		Part Owners		Tenant Operators		Manager Operated	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
1900 a/	2,654,167		N/A		N/A		N/A		N/A	
1910 a/	2,586,151		N/A		N/A		N/A		N/A	
1920	2,476,426	100	1,761,992	71.1	197,940	8.0	423,327	17.1	93,167	3.8
1930	2,161,114	100	1,497,259	69.3	219,829	10.2	391,519	18.1	52,507	2.4
1940	2,128,143	100	1,521,397	71.5	175,600	8.3	410,547	19.3	20,599	0.9
1950	1,971,113	100	1,433,219	72.7	297,487	15,1	222,697	11.3	17,710	0.9
1960	1,481,482	100	1,033,731	69,8	338,372	22.8	96,297	6.5	13,082	0.9
1970	1,162,351	100	869,720	74.8	246,647	21.2	45,984	4.0	N/A	

[a]Available for total state only in 1900 and 1910 census reports.

TABLE 70.—Number of Horses and Mules, Dairy Cows, Beef Cows, and Sheep on Farms, Ohio Subarea 10, by Census Periods, 1900-1970.

Census Period	Number of Animals				Number of Animal Units 3/			
					Including horses and mules		Excluding horses and mules	
	Horses and Mules (all ages) 1/	Dairy Cows	Beef Cows	Sheep (One year old & over)	Total 2/	Per 100 Acres in Farms	Total	Per 100 Acres in Farms
1900	68,073	57,593	8,733	220,131	171,618	6.5	110,352	4.2
1910	60,855	59,687	13,027	219,933	171,471	6.6	116,701	4.5
1920	57,364	55,971	13,860	104,539	142,367	5.8	90,739	3.7
1930	37,415	53,373	3,765	109,741	112,760	5.2	79,086	3.7
1940	33,376	63,070	5,452	86,773	115,915	5.5	85,877	4.0
1950	23,051	62,147	12,410	28,377	100,978	5.1	80,232	4.1
1960	7,796	41,291	28,117	22,642	80,952	5.5	73,936	5.0
1970	5,310	18,979	44,276	14,094 4/	70,853	6.1	66,074	5.7

[1]Horse and mule numbers are the total of all ages except in 1940, which only provided the number over 3 months of age. In 1900 and 1910, the numbers were provided by three age groups. Later census reports provided no breakdown by age groups. Consequently, to provide the most nearly comparable series, the total number of all ages was used except for 1940. To convert total horse and mule numbers to animal units, a conversion factor of 0.9 was used to adjust for the lower feed consumption of the young animals.

[2]In addition to the horses, mules, and dairy cows on farms in 1900, there were 194,737 horses and mules and 50,393 dairy cows in urban and non-farm areas of the state; in 1910, 194,881 horses and mules and 47,054 dairy cows; and in 1920, 95,206 horses and mules and 46,579 dairy cows. Since 1920, animals in urban and non-farm areas decreased rapidly and numbers were not obtained thereafter by the Bureau of the Census. Horses, mules, and dairy cows not on farms were not included in the above analysis.

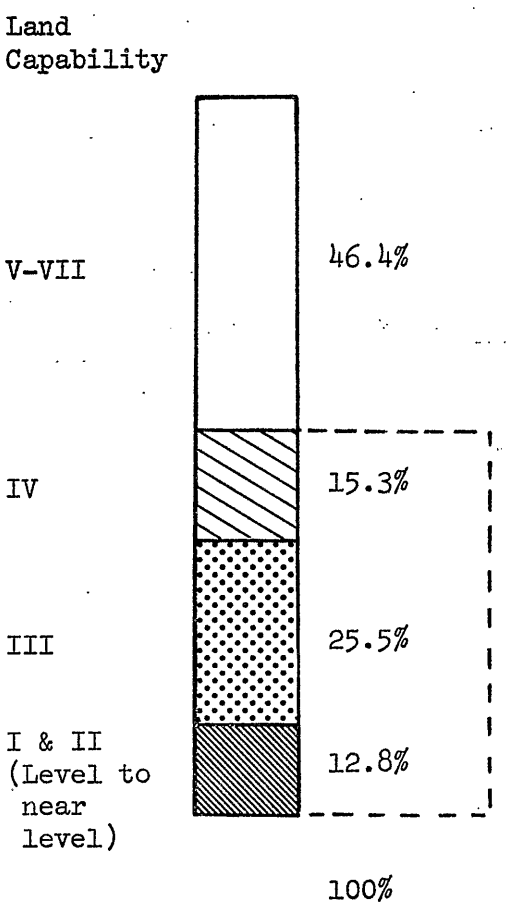
[3]Animal units (A.U.'s) were computed as follows: one horse or mule (all ages) = 0.9 A.U., one dairy cow = 1.0 A.U., one beef cow = 1.0 A.U., and five mature sheep = 1.0 A.U.

[4]The 1970 census only reported total sheep and lambs. Sheep numbers (1 year old and older) were estimated by assuming the same ratio of sheep 1 year old or over to lambs under 1 year as reported in the 1960 census.

TABLE 71.—Farm, Non-Farm, and Total Population, Ohio Subarea 10, by Census Periods, 1900-1970.

Census Period	Farm Population		Non-Farm Population		Total Population	
	Total	Per Sq. Mile	Total	Per Sq. Mile	Total	Per Sq. Mile
1900	NA	--	NA	--	316,176	65.8
1910	NA	--	NA	--	315,770	65.7
1920	NA	--	NA	--	322,228	67.1
1930	101,528	21.1	227,467	47.4	328,995	68.5
1940	114,438	23.8	233,763	48.7	348,201	72.5
1950	90,413	18.8	252,648	52.6	343,061	71.4
1960	36,296	7.6	329,518	68.6	365,814	76.2
1970	18,593	3.9	351,343	73.2	369,936	77.0

Land Capability, Subarea 10



46.4% Suitable for permanent grazing and/or forest, generally not suitable for cultivation.

53.6% Suitable for cropping with increasing degrees of erosion control practices and management problems in moving from I to IV.

100.0% See appendix for land capability characteristics and use restrictions.

SUBAREA 11
SOUTHWESTERN ILLINOIAN GLACIATED COUNTIES

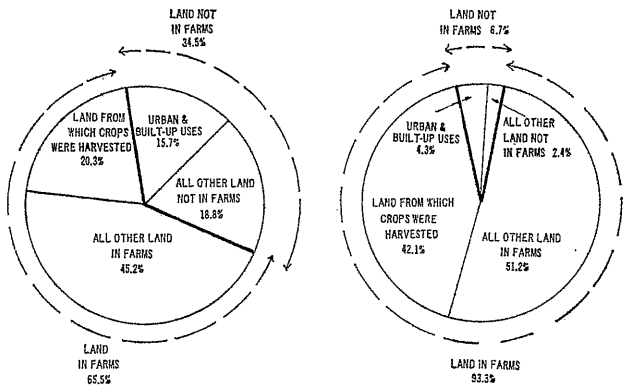
This subarea comprises five counties in southwestern Ohio, four of which border on the Ohio River. Most of the area was covered by the Illinoian Glacier and small parts of the northern fringe were also covered by the Early Wisconsin glacial drift. However, the southeastern parts of Brown and Adams counties were not affected by either and are unglaciated. The soils, except in the unglaciated portion, are glacial drift in origin involving limestone, sandstone, or shale. The western part of the unglaciated section is residual limestone in origin and the eastern section was derived from residual sandstone and shale. The topography ranges from level to steep and broken, with both drainage and erosion critical problems. Its proximity to the Ohio River, one of the principal routes of early settlers into Ohio, and the location in the area of the 311,672 acre 1788 "Symmes Purchase," one of the two major sales of land by the Federal Government to encourage settlement in the Northwest Territory, resulted in a fairly rapid transition from wilderness to pioneer farms early in the 1800's.

The CNIC invoiced 31.8 percent of the subarea as capability I and II land and a similar amount as capability III. One acre in four or 26 percent was listed as not being suitable for crop production. The Cincinnati metropolitan complex exerts a marked effect on the use of the land in the western part of the subarea.

In This Area in 1970:

- Almost one-third of the total land was classified as forest (farm and non-farm) by the CNIC. Only subareas 9 and 10 contained a higher percentage.
- 65.5 percent or approximately two-thirds of the total land area was in farms, with about half of the remainder occupied by Urban and Built-up Uses.
- Crops were harvested on 31.0 percent of the land in farms.
- Intertilled crops accounted for 60.4 percent of the crops harvested, small grain 14.4, crops harvested for hay 24.9, and fruit 0.3 percent.
- 5,418 acres of tobacco were harvested. This represented 63.5 percent of the state's total tobacco acreage. In terms of acres, corn was the most important single crop.
- Cropland used only for pasture, often called rotation pasture, comprised 19 percent of the total land in farms. This was the highest percent of farm area used exclusively as cropland pasture of any of the subareas.

Land Use in Subarea 11, 1970 (left) and 1900 (right).



Land Uses in Subarea 11

Categories of Use	1970 Acres	1970 Percent	1900 Acres	1900 Percent
Land in Farms				
In Crops Harvested	324,682	20.3	659,581	42.1
In All Other Uses	722,860	45.2	801,812	51.2
Total	1,047,542	65.5	1,461,393	93.3
Land Not in Farms				
Urban and Built-up Uses				
Urban and Built-up Areas	243,723		NA	
Federal Non-cropland	2,168		NA	
Water Areas	7,202		NA	
Total Urban and Built-up Uses	253,093	15.7	67,857	4.3
All Other Land Not in Farms	300,224	18.8	37,470	2.4
Total Land Not in Farms	553,317	34.5	105,327	6.7
Total Physical Area (Farm and Non-farm)	1,600,859	100.0	1,566,720	100.0

• The average size of farm was 125.7 acres. Only in subareas 7 and 8, both in northeastern Ohio, was the average size of farms smaller.

• Farmers who owned all of the land they farmed accounted for approximately two-thirds of the land in farms; part owners, part renters controlled 25 percent and tenant operators 10 percent.

• Roughage and pasture-consuming livestock, exclusive of draft animals, in terms of animal units per 100 acres of land in farms was 5.7. This was slightly higher than the average for the state. Beef cows accounted for about 60 percent of the total animal units.

• The total population per square mile was 437.5, third highest in the state. Only 9.2 persons per square mile were recorded as farm population.

Data on Land Use and Selected Factors Show:

• A 28.3 percent decrease in land in farms and a 271 percent increase in the acreage occupied by Urban and Built-up Uses.

• A decrease in the acreage of crops harvested from 659,581 to 324,682 or 50.8 percent in 70 years, with most of the decrease occurring since 1920.

• A sharp drop in the acreage of intensive crops. Potatoes, vegetables for sale, tobacco, and fruit were an important aspect of the area's agriculture during the first 20 years of the century. At that time these crops made up approximately 10 percent of crops harvested, but in 1970 they made up only 2.6 percent.

• Soybeans was the only crop to register a higher acreage in 1970 than at any previous census.

• The number of farms declined at a rate slightly less rapid than for the state as a whole. The number of farms with less than 100 acres declined less and those with 260 acres or more increased less percentagewise than the total state.

• Full tenant farm operations have declined and part owner, part tenant operations have increased significantly.

• The number of roughage and pasture-consuming animal units, including horses and mules, has declined from a peak of 8.1 per 100 acres of land in farms in 1910 to 6.0 in 1970. However, over the period there was a small increase in density of roughage and pasture-consuming animal units other than horses and mules. More significant than changes in density were changes in types. During the first 50 years, dairy cow numbers accounted for three-fourths of the roughage-consuming units, exclusive of horses and mules. In 1970, they made up only 36 percent while beef cows accounted for 60 percent.

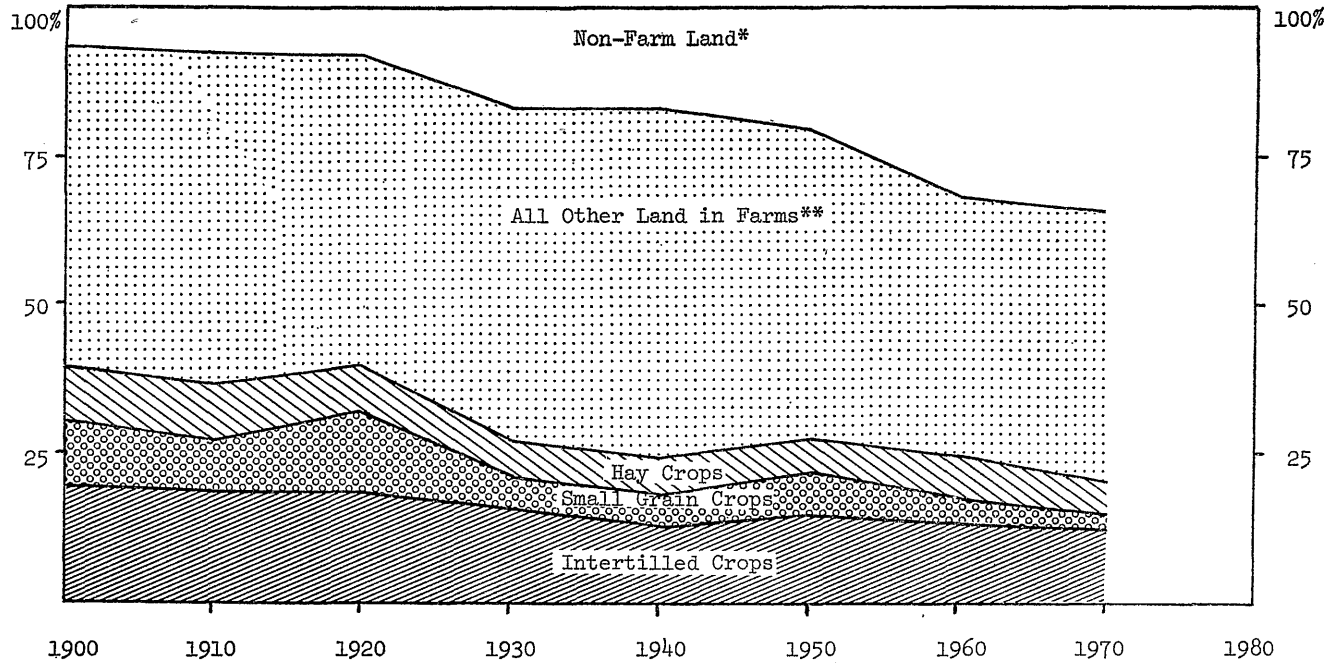
• Total population increased gradually from 210.5 per square mile in 1900 to 437.5 in 1970, and farm population declined from 25.1 in 1940 to 9.2 in 1970.

Some General Observations

Two factors will lead to further reductions in the area in farms: increasing population associated with further industrial growth and the near-marginal quality of a substantial amount of land still in farms in the area. This reduction will result through continual spread of the Cincinnati metropolitan area in the western half and additional farm land retirement in the eastern parts of the area with large amounts of low capability soil. This latter trend is unlikely to be reversed unless a significant change occurs in the national economy which raises the long-run farm income potential to that of the non-farm opportunities available to the farm people in the area.

A major part of the land remaining in farming will be operated by part-time farmers. Some further increase in the amount of land per farm will occur as a result of farm unit consolidation, but the average size of farms and the percent with 260 or more acres will continue to be much below the other western Ohio subareas. The beef cow enterprise will increase because of the low and flexible labor requirement and further adoption of year-round grazing which makes it adapt well to part-time farm operation. Dairy cow numbers will continue to decrease because of high labor requirements and production costs, but both will change at a somewhat slower rate than in the last two decades.

Land Use in Subarea 11 by Census Periods, 1900-1970.



*Includes Urban and Built-up Uses, scattered non-farm rural residences, brush, forest, and wasteland outside farms.
**Includes cropland which is idle, fallow, and failed; cropland used only for pasture; non-cropland, non-woodland pasture; woodland; and land occupied by farmsteads, farm roads, ponds, and wasteland.

TABLE 72.—Total Land Area and Acreage by Different Use Categories, Ohio Subarea 11, by Census Periods, 1900-1970.

Census Period	Total Land Area	Total Land Outside Farms	Land in Farms						
			Total in Farms	Cropland				Woodland Pastured & Not Pastured	All Other Land in Farms[2]
				Cropland Total[1]	Harvested	Idle, Fallow and Failed	Pastured Only[1]		
1900	1,566,720	105,327	1,461,393	NA	659,581	NA	NA	NA	NA
1910	1,566,720	118,859	1,447,861	NA	601,215	NA	NA	190,810	NA
1920	1,566,720	136,308	1,430,412	NA	642,750	NA	NA	188,842	NA
1930	1,566,720	264,884	1,301,836	672,663	441,059	98,273	133,331	160,560	NA
1940	1,603,200	271,304	1,331,896	646,635	402,099	95,311	149,225	158,592	NA
1950	1,603,200	333,162	1,270,038	838,072	448,221	96,592	293,259	208,079[3]	223,887
1960	1,603,200	511,058	1,092,142	702,907	394,983	90,826	217,098	192,997	196,238
1970	1,600,859	553,317	1,047,542	673,248	324,682	147,984	200,582	188,970	185,324

[1]Total Cropland and Cropland Used Only for Pasture were not reported in censuses prior to 1950. In 1930 and 1940, the census reported an acreage of Plowable Pasture, defined as the land used only for pasture which could have been used for crops without clearing and draining. As interpreted by most farmers, this included their open (brush and tree-free) permanent pasture, as well as their cropland used only for pasture. Consequently, it could not be added to the acreage of crops harvested and the idle, fallow, and failed acres to obtain a Total Cropland acreage. In 1950, the Bureau of the Census shifted from the classification of Plowable Pasture to Cropland Used Only for Pasture, and obtained an acreage figure which, although it probably still contained some permanent pasture land, was considered a sufficiently reliable reflection of cropland to permit the reporting of a Total Cropland acreage.
[2]Non-crop, non-woodland pasture and land in house and barn lots, lanes, roads, ditches, ponds, and wasteland.
[3]No definition was given farm operators or census enumerators in 1950, which may explain this improbable increase.

TABLE 73.—Acreage of Principal Crops Harvested by Types of Crops, Ohio Subarea 11, by Census Periods, 1900-1970.

	1900	1910	1920	1930	1940	1950	1960	1970
Row or Intertilled Crops								
Corn, All Purposes	255,393	250,536	262,307	208,792	190,234	199,114	171,436	107,507
Soybeans	NA	NA	NA	11,395	5,328	21,231	25,750	79,021
Potatoes, Irish & Sweet	12,723	12,994	10,954	5,306	3,054	569	829	340
Vegetables for Sale	13,680	13,133	5,388	5,888	4,486	2,810	21,383	1,623
Tobacco	14,240	22,548	19,824	15,695	12,025	10,330	6,956	5,418
Sugarbeets	NA	NA	NA	NA	NA	NA	NA	NA
Popcorn	298	NA	NA	NA	108	31	NA	a/
Total	296,334	299,211	298,473	247,076	215,235	234,085	207,354	193,911
Small Grain								
Wheat	167,197	100,094	166,334	56,418	77,692	105,038	43,922	37,353
Oats	16,212	25,025	23,032	23,155	1,402	5,526	17,976	
Barley	1,186	361	268	472	945	936	2,305	8,927
Rye	2,405	11,183	23,270	8,309	1,711	724	955	
Mixed & Other Grains	42	118	369	843	1,889	1,937	183	
Total	187,042	136,781	213,273	89,197	83,639	114,161	65,341	46,280
Hay Crops Harvested	142,310	145,903	120,794	98,523	87,778	89,555	107,270	80,028
Fruit, Nuts, Berries	27,910 b/	19,320 b/	10,210 b/	11,075	6,443	4,391	1,675	985
Total Crops Harvested c/	653,596	601,215	642,750	445,871	393,095	442,192	381,590	321,204

[a]Source: Crop Reporting Service.
[b]Derived by converting number of trees and vines to acres.
[c]See section on Discrepancies, page 5.

TABLE 74.—Total Number of Farms and Number by Size Groups, Ohio Subarea 11, by Census Periods, 1900-1970.

	1900	1910	1920	1930	1940	1950	1960	1970
Total Number of Farms	19,259	19,269	18,422	14,514	15,327	13,312	9,409	8,336
Average Acres Per Farm	75.9	75.1	77.6	89.7	86.9	95.4	116.1	125.7
Number of Farms:								
Under 10 Acres	1,556	1,894	1,562	833	1,530	1,178	592	687
10 - 49 Acres	6,422	6,255	5,566	3,626	3,820	3,226	1,863	1,646
50 - 99 Acres	5,774	5,625	5,728	4,674	4,469	3,647	2,546	2,099
100 - 179 Acres	4,076	4,207	4,344	4,095	4,054	3,672	2,692	2,161
180 - 259 Acres	961	863	878	917	990	1,026	992	887
260 - 499 Acres	400	381	309	330	415	488	618	656
500 Acres or More	70	44	35	39	49	75	106	200

TABLE 75.—Acreage of Land Operated Under Different Tenure Systems, Ohio Subarea 11, by Census Periods, 1900-1970.

Census Period	Total Acreage in Farms		Full Owners		Part Owners		Tenant Operators		Manager Operated	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
1900 a/	1,461,393		N/A		N/A		N/A		N/A	
1910 a/	1,447,861		N/A		N/A		N/A		N/A	
1920	1,430,412	100	841,259	58.8	113,452	7.9	453,227	31.7	22,474	1.6
1930	1,301,836	100	739,095	56.8	125,820	9.7	414,123	31.8	22,798	1.7
1940	1,331,896	100	753,993	56.6	107,601	8.1	455,219	34.2	15,083	1.1
1950	1,270,038	100	739,216	58.2	194,272	15.3	323,733	25.5	12,817	1.0
1960	1,092,142	100	618,898	56.7	245,235	22.4	209,371	19.2	18,638	1.7
1970	1,047,542	100	678,923	64.8	260,609	24.9	108,100	10.3	N/A	

[a]Available for total state only in 1900 and 1910 census reports.

TABLE 76.—Number of Horses and Mules, Dairy Cows, Beef Cows, and Sheep on Farms, Ohio Subarea 11, by Census Periods, 1900-1970.

Census Period	Number of Animals				Number of Animal Units 3/			
					Including horses and mules		Excluding horses and mules	
	Horses and Mules (all ages) 1/	Dairy Cows	Beef Cows	Sheep (One year old & over)	Total 2/	Per 100 Acres in Farms	Total	Per 100 Acres in Farms
1900	52,909	48,518	3,978	64,683	113,051	7.7	65,433	4.5
1910	53,585	50,911	7,565	53,994	117,502	8.1	69,275	4.8
1920	50,554	54,986	6,890	38,119	114,999	8.0	69,500	4.9
1930	32,069	44,686	2,631	53,303	86,840	6.7	57,978	4.5
1940	29,179	50,610	3,892	53,235	91,410	6.9	65,149	4.9
1950	15,766	49,531	11,019	22,379	79,215	6.2	65,026	5.1
1960	5,013	36,291	24,853	19,260	69,508	6.4	64,996	6.0
1970	3,719	21,749	35,658	11,510 4/	63,056	6.0	59,709	5.7

[1]Horse and mule numbers are the total of all ages except in 1940, which only provided the number over 3 months of age. In 1900 and 1910, the numbers were provided by three age groups. Later census reports provided no breakdown by age groups. Consequently, to provide the most nearly comparable series, the total number of all ages was used except for 1940. To convert total horse and mule numbers to animal units, a conversion factor of 0.9 was used to adjust for the lower feed consumption of the young animals.

[2]In addition to the horses, mules, and dairy cows on farms in 1900, there were 194,737 horses and mules and 50,393 dairy cows in urban and non-farm areas of the state; in 1910, 194,881 horses and mules and 47,054 dairy cows; and in 1920, 95,206 horses and mules and 46,579 dairy cows. Since 1920, animals in urban and non-farm areas decreased rapidly and numbers were not obtained thereafter by the Bureau of the Census. Horses, mules, and dairy cows not on farms were not included in the above analysis.

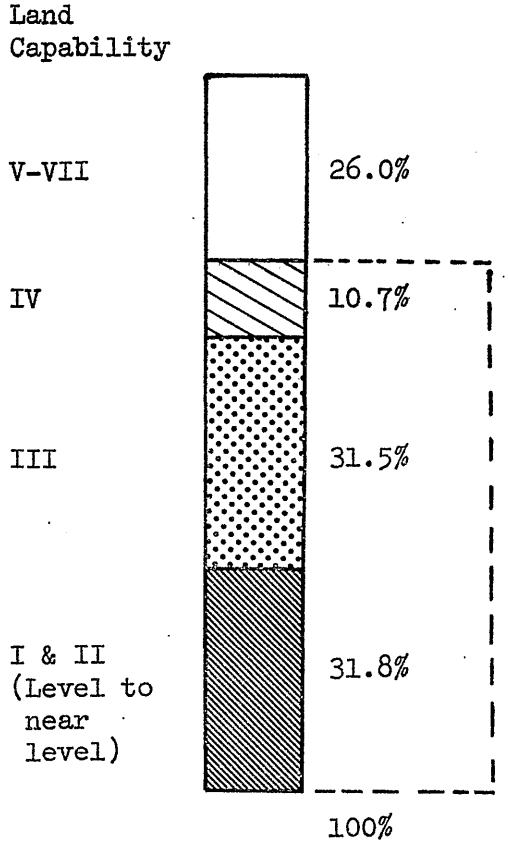
[3]Animal units (A.U.'s) were computed as follows: one horse or mule (all ages) = 0.9 A.U., one dairy cow = 1.0 A.U., one beef cow = 1.0 A.U., and five mature sheep = 1.0 A.U.

[4]The 1970 census only reported total sheep and lambs. Sheep numbers (1 year old and older) were estimated by assuming the same ratio of sheep 1 year old or over to lambs under 1 year as reported in the 1960 census.

TABLE 77.—Farm, Non-Farm, and Total Population, Ohio Subarea 11, by Census Periods, 1900-1970.

Census Period	Farm Population		Non-Farm Population		Total Population	
	Total	Per Sq. Mile	Total	Per Sq. Mile	Total	Per Sq. Mile
1900	NA	--	NA	--	526,636	210.5
1910	NA	--	NA	--	568,581	227.3
1920	NA	--	NA	--	594,603	237.7
1930	62,455	25.0	622,632	248.9	685,087	273.9
1940	67,767	25.1	658,771	263.4	726,538	290.5
1950	55,728	22.3	781,314	312.3	837,042	334.6
1960	32,967	13.2	986,560	394.4	1,019,527	407.6
1970	23,101	9.2	1,071,230	428.3	1,094,331	437.5

Land Capability, Subarea 11



26.0% Suitable for permanent grazing and/or forest, generally not suitable for cultivation.

74.0% Suitable for cropping with increasing degrees of erosion control practices and management problems in moving from I to IV.

100.0% See appendix for land capability characteristics and use restrictions.

Appendix

Ohio Soil and Water Conservation Needs Inventory[18]

This report presents the basic data and explanatory notes for the Ohio Soil and Water Conservation Needs Inventory. This inventory was part of a national inventory using standardized procedures and the data presented are believed to be comparable to those reported by other states. Policies and procedures for collecting data and developing the inventory were established by the U. S. Dept. of Agriculture Conservation Needs Inventory Committee.

PROCEDURE FOR OBTAINING BASIC DATA

The basic data for updating the Conservation Needs Inventory in Ohio have been developed from soil surveys of sample areas. These sample areas mapped by soil scientists of the Soil Conservation Service and the Division of Lands and Soil, Ohio Department of Natural Resources, for the 1958 inventory were restudied and updated in the 1967 standard. The system adopted for updating the Inventory involved the reworking of appropriate data in the sample areas being re-examined. Randomized sample areas representing each of Ohio's 88 counties, selected by the Statistical Laboratory at Iowa State University, were examined. The exact locations of all sample areas were located on county base maps. Each map also showed in detail the boundaries of the nationally established major land resource areas and watershed sub-basins.

The standard size of each sample area was 160 acres. The basic sampling rate was .2 percent for each of the 84 counties in the state containing between 250,000 to 500,000 acres. A 4 percent sampling rate was used in the four smaller counties—Erie, Lake, Lucas, and Ottawa. These rates provided data of an acceptable degree of statistical reliability.

In updating the Inventory, a different system was used for obtaining data from the sample areas than used in 1958. In the original Inventory, sample areas were examined to determine kinds of conservation problems; results were recorded for the four major land uses by capability classes. Acreages determined from the sample areas were expanded to county totals.

In the 1967 updating program, approximately 36 points were marked on each 160-acre sample area. Location of these points was determined by spinning a template with an off-set center. This assured a random selection of points within each area, each point representing 4.4 acres.

[18]Adapted from CNIC report for 1971.

Each of these points was examined on-site by technically trained Soil Conservation Service personnel. Information was recorded on Form SCS-263 concerning soil, land use, and conservation treatment needs. Location of each 160-acre sample area was recorded in code form showing county, major land resource area, and watershed sub-basins. These data were then summarized by the Statistical Laboratory at Iowa State University, Ames.

LAND CAPABILITY CLASSES—CHARACTERISTICS AND USE RESTRICTIONS

Land Suited for Cultivation and Other Uses

Class I—Soils in Class I have few limitations restricting their use. Subclasses are not recognized for this class.

Soils in this class are suited to a wide range of plants and may be used safely for cultivated crops, pasture, woodland, and wildlife. The soils are nearly level and erosion hazard (by wind or water) is low. They are deep, generally well drained, and easily worked. They hold water well and are either fairly well supplied with plant nutrients or highly responsive to inputs of fertilizer.

The soils in Class I are not subject to damaging overflow. They are productive and suited for intensive cropping. The local climate must be favorable for growing many of the common field crops. Soils which are wet and have slowly or very slowly permeable subsoils are not placed in Class I.

Soils in Class I used for crops need ordinary management practices to maintain productivity—both soil fertility and soil structure. Such practices may include the following: fertilizers and lime, cover and green-manure crops, conservation of crop residues and animal manures, and sequences of adapted crops.

Class II—Soils in Class II have some limitations which reduce the choice of plants or require moderate conservation practices, but they may be put into the same uses as soils in Class I.

Soils in this class require careful soil management, including conservation practices, to prevent deterioration or to improve productivity.

Limitations of soils in Class II may include, singly or in combination, the effects of: 1) gentle slopes; 2) moderate susceptibility to wind or water erosion, or moderate adverse effects of past erosion; 3) less than ideal soil depth; 4) somewhat unfavorable soil structure and workability; 5) occasional damaging overflow; and 6) wetness, correctable by drainage, but existing permanently as a moderate limitation.

The soils in this class provide the farm operator less latitude in the choice of either crops or management practices than soils in Class I. They may also require special soil-conserving cropping systems, soil conservation practices, water-control devices, or tillage methods when used for cultivated crops. For example, deep soils of this class with gentle slopes which are subject to moderate erosion when cultivated may need one of the following practices or some combination of two or more: terracing, stripcropping, contour tillage, crop rotations including grasses and legumes, vegetated water-disposal areas, cover or green-manure crops, stubble mulching, fertilizers, manure, and lime. The exact combinations of practices vary from place to place, depending on the characteristics of the soil, the local climate, and the farming system.

Class III—Soils in Class III have severe limitations which reduce the choice of plants, require special conservation practices, or both.

Soils in Class III have more restrictions than those in Class II, and when used for cultivated crops, the conservation practices are usually more difficult to apply and to maintain. However, subject to these restrictions, they may be used for the same purposes as Class I and Class II soils.

Limitations of soils in Class III restrict the amount of clean cultivating, timing of planting, tillage, and harvesting; choice of crops; or a combination of these items. The limitations may result from the effects of one or more of the following: 1) moderately steep slopes; 2) high susceptibility to water or wind erosion or severe adverse effects of past erosion; 3) frequent overflow accompanied by some crop damage; 4) very slow permeability of the subsoil; 5) wetness or some continuing waterlogging after drainage; 6) shallow depths to bedrock, hardpan, fragipan, or claypan which limits the rooting zone and the water storage; 7) low moisture holding capacity; or 8) low fertility not easily corrected.

When cultivated, many of the wet, slowly permeable but nearly level soils in Class III require a drainage system and a cropping system which maintain or improve the structure and tilth of the soil. To prevent puddling and to improve permeability, it is commonly necessary to supply organic material to such soils and to avoid working them when they are wet. Each distinctive kind of soil in Class III has one or more alternative combinations of use and practices required for safe use, but the number of practical alternatives for average farmers is less than for soils in Class II.

Class IV—Soils in Class IV have very severe limitations which restrict the choice of plants, require very careful management, or both.

The restrictions in use for these soils are greater than those in Class III, and the choice of plants is more limited. When these soils are cultivated, more careful management is required and conservation practices are more difficult to apply and maintain. Soils in Class IV may be used for crops, pastures, woodland, or for wildlife food and cover, the full range of uses to which Classes I, II, and III may be put. However, the intensity of use is necessarily lower for soils in Class IV.

Soils in Class IV may be well suited to only two or three of the common crops or the amount of harvest produced may be low in relation to inputs over a long period. Use for cultivated crops is limited as a result of the effects of one or more permanent features such as: 1) steep slopes; 2) severe susceptibility to water or wind erosion; 3) severe effects of past erosion; 4) shallow soils; 5) low moisture-holding capacity; 6) frequent overflows accompanied by severe crop damage; or 7) excessive wetness with continuing hazard of waterclogging after drainage.

Many sloping soils in Class IV in humid regions are suited for occasional but not regular cultivation. Some of the poorly drained, nearly level soils placed in Class IV are not subject to erosion but are poorly suited to intertilled crops because of the time required for the soil to dry out in the spring and because of low productivity for cultivated crops. Some soils in Class IV are well suited to one or more of the special crops, such as fruits and ornamental trees and shrubs, but this suitability itself is not sufficient to place a soil in Class IV.

Land Limited in Use—Generally Not Suited for Cultivation

Class V—Soils in Class V have little or no erosion but have other limitations impractical to remove which limit their use largely to pasture, range, woodland, or wildlife food and cover.

Soils in this class have limitations restricting the kind of plants which can be grown and preventing normal tillage of cultivated crops. They are nearly level but some are wet, are frequently overflowed by streams, are stony, have climatic limitations, or have some combination of these limitations. Examples of Class V are: 1) soils of the bottom lands subject to frequent overflow which prevents the normal production of cultivated crops; 2) nearly level soils with a growing season preventing the normal production of cultivated crops; 3) level or nearly level stony or rocky soils; and 4) ponded areas where drainage for cultivated crops is not feasible but where soils are suitable for grasses or trees. Because of these limitations, cultivation of the common crops is not feasible, but pasture can be improved and benefits from proper management can be expected.

Class VI—Soils in Class VI have severe limitations which make them generally unsuited for cultivation and limit their use largely to pasture, woodland, or wildlife food and cover or some combination of these.

Physical conditions of soils placed in Class VI are such that it is practical to apply range or pasture improvements if needed, such as seeding, liming, fertilizing, and water control with contour furrows, drainage ditches, diversions, or water spreaders. Soils in Class VI have continuing limitations which cannot be corrected, such as: 1) steep slopes; 2) severe erosion hazard; 3) effects of past erosion; 4) stoniness; 5) shallow rooting zone; 6) excessive wetness or overflow; or 7) low moisture capacity. Due to one or more of these limitations, these soils are not generally suited for cultivated crops.

Class VII—Soils in Class VII have very severe limitations which make them unsuited for cultivation. However, with proper management they can be used safely for grazing, woodland, or wildlife food or cover.

Physical conditions of soils in Class VII are such that it is impractical to apply such pasture or range improvements as seeding, liming, fertilizing, and water control measures such as contour furrows, ditches, diversions, or water spreaders. Soil restrictions are more severe than those in Class VI because of one or more continuing limitations which cannot be corrected, such as very steep slopes, erosion, shallow soil, stones, wet soil, or other limitations.

Depending upon the soil characteristics and local climate, soils in this class may be well or poorly suited to woodland. They are not suited to any of the common cultivated crops; in unusual instances, some soils in this class may be used for special crops under unusual management practices. Some areas of Class VII may need seeding or planting to protect the soil and to prevent damage to adjoining areas.

Class VIII—Soils and landforms in Class VIII have limitations which preclude their use for commercial plant production and restrict their use to recreation, wildlife, water supply, or aesthetic purposes. The Inventory recorded 14,500 acres of Class VIII land in Ohio.

Badlands, rock outcrop, sandy beaches, river wash, mine tailings, and other nearly barren lands are included in Class VIII. It may be necessary to give protection and management for plant growth to soils and landforms in Class VIII in order to protect other more valuable soils, to control water, or for wildlife or aesthetic reasons.

BETTER LIVING IS THE PRODUCT

of research at the Ohio Agricultural Research and Development Center. All Ohioans benefit from this product.

Ohio's farm families benefit from the results of agricultural research translated into increased earnings and improved living conditions. So do the families of the thousands of workers employed in the firms making up the state's agribusiness complex.

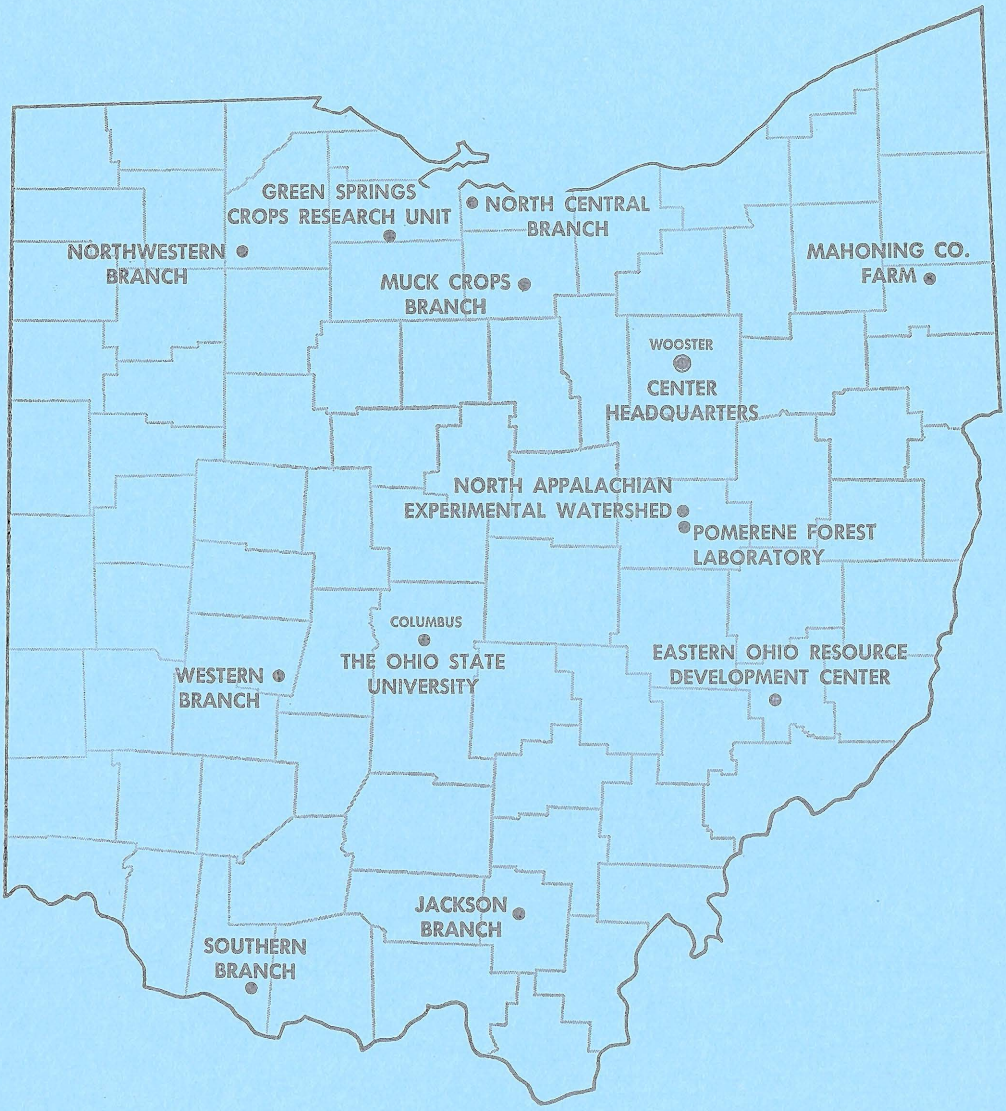
But the greatest benefits of agricultural research flow to the millions of Ohio consumers. They enjoy the end products of agricultural science—the world's most wholesome and nutritious food, attractive lawns, beautiful ornamental plants, and hundreds of consumer products containing ingredients originating on the farm, in the greenhouse and nursery, or in the forest.

The Ohio Agricultural Experiment Station, as the Center was called for 83 years, was established at The Ohio State University, Columbus, in 1882. Ten years later, the Station was moved to its present location in Wayne County. In 1965, the Ohio General Assembly passed legislation changing the name to Ohio Agricultural Research and Development Center—a name which more accurately reflects the nature and scope of the Center's research program today.

Research at OARDC deals with the improvement of all agricultural production and marketing practices. It is concerned with the development of an agricultural product from germination of a seed or development of an embryo through to the consumer's dinner table. It is directed at improved human nutrition, family and child development, home management, and all other aspects of family life. It is geared to enhancing and preserving the quality of our environment.

Individuals and groups are welcome to visit the OARDC, to enjoy the attractive buildings, grounds, and arboretum, and to observe first hand research aimed at the goal of Better Living for All Ohioans!

The State Is the Campus for Agricultural Research and Development



Ohio's major soil types and climatic conditions are represented at the Research Center's 13 locations.

Research is conducted by 15 departments on more than 7200 acres at Center headquarters in Wooster, eight branches, Green Springs Crops Research Unit, Pomerene Forest Laboratory, North Appalachian Experimental Watershed, and The Ohio State University.

Center Headquarters, Wooster, Wayne County: 1953 acres

Eastern Ohio Resource Development Center, Caldwell, Noble County: 2053 acres

Green Springs Crops Research Unit, Green Springs, Sandusky County: 26 acres

Jackson Branch, Jackson, Jackson County: 344 acres

Mahoning County Farm, Canfield: 275 acres

Muck Crops Branch, Willard, Huron County: 15 acres

North Appalachian Experimental Watershed, Coshocton, Coshocton County: 1047 acres (Cooperative with Agricultural Research Service, U. S. Dept. of Agriculture)

North Central Branch, Vickery, Erie County: 335 acres

Northwestern Branch, Hoytville, Wood County: 247 acres

Pomerene Forest Laboratory, Coshocton County: 227 acres

Southern Branch, Ripley, Brown County: 275 acres

Western Branch, South Charleston, Clark County: 428 acres